SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Staff Report
Proposed Rule 1420.2 – Emission Standards for Lead from Metal Melting Facilities

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EXECUTIVE SUMMARY

BACKGROUND

The South Coast Air Quality Management District (SCAQMD) is responsible for developing and enforcing air pollution control rules and regulations in the South Coast Air Basin (Basin). By state law, the SCAQMD is required to adopt an Air Quality Management Plan (AQMP) demonstrating compliance with all federal regulations and standards such as National Ambient Air Quality Standards (NAAQS) for the Basin [H&S Code Section 40460 (a)].

In October 1978, the U.S. Environmental Protection Agency (EPA) promulgated the primary and secondary NAAQS for lead under section 109 of the Clean Air Act. Both primary and secondary standards were set at a level of 1.5 micrograms per cubic meter ($\mu g/m^3$) averaged over a calendar quarter. Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against visibility impairment, damage to animals, crops, vegetation, and buildings.

On October 15, 2008, the EPA amended both the primary and secondary NAAQS for lead from a level of 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$ averaged over a rolling 3-month period, along with changes to monitoring and reporting requirements. On December 31, 2010, the EPA designated a portion of Los Angeles County as non-attainment for the 2008 NAAQS for lead based on monitored air quality data from 2007-2009 that indicated a violation of the NAAQS near a large lead-acid battery recycling facility. Even before this designation, SCAQMD Rule 1420.1 – Emission Standards for Lead from Large Lead-acid Battery Recycling Facilities was adopted on November 5, 2010 to control emissions of lead from large lead-acid battery recycling facilities in order to reduce lead emissions and help ensure attainment of the 2008 NAAQS for lead of 0.150 $\mu g/m^3$. In May of 2014, the U.S. EPA released its "Policy Assessment for the Review of the Lead National Ambient Air Quality Standards," reaffirming the primary (health-based) and secondary (welfare-based) standards and staff conclusions to retain the current standard, rather than revise it. As a result, in January of 2015 the U.S. EPA proposed that the ambient lead concentration standard of 0.15 $\mu g/m^3$ averaged over a rolling 3-month period remain unchanged. The 90-day comment period for this proposal ended on April 6, 2015 and requires further action by the U.S. EPA in order to issue a final rule.

Based on ambient air lead monitoring data, Rule 1420.1 has proven effective for demonstrating attainment with the lead NAAQS by the large lead-acid battery recycling industry, however, SCAQMD staff is concerned with lead emissions from the broader industry source category of metal melting. Based on SCAQMD annual emission inventories submitted through the SCAQMD Annual Emissions Reporting (AER) program, permitting information for equipment processing and handling lead, and ambient air lead monitoring data, the SCAQMD staff determined that the metal melting industry is a significant stationary source of lead emissions.[1] Existing federal and state regulations currently control lead emissions from this source category, however, additional requirements similar to those that have effectively reduced emissions from large lead-acid battery

[1] The supporting documentation for this evaluation includes the following sources: 2010-2013 SCAQMD AER Data, Permitting data for metal melting furnaces, 1420 Compliance Plans, Source tests from AB2588 program for affected facilities, and SCAQMD ambient air lead data for GERDAU and Trojan Battery. This information is available upon request (subject to the SCAQMD's Public Records Request Guidelines).

recyclers may be necessary to adequately protect public health. As a result, SCAQMD staff is proposing that the SCAQMD Governing Board adopt Proposed Rule (PR) 1420.2. Specifically, the objective of PR 1420.2 is to protect public health by minimizing public exposure to lead emissions and preventing exceedances of the lead NAAQS in the Basin.

PUBLIC PROCESS

PR 1420.2 is being developed through a public process. A working group was formed to provide the public and stakeholders an opportunity to discuss important details about the proposed rule and provide the SCAQMD staff with important input during the rule development process. The working group and interested parties are comprised of a variety of stakeholders including representatives from industry, consultants, environmental groups, community groups, and public agency representatives. The SCAQMD staff has held six (6) working group meetings. To date, the working group has convened on December 17, 2014, January 20, 2015, February 19, 2015, April 23, 2015, May 13, 2015, and June 18, 2015. A Public Workshop was held on May 14, 2015 to present the proposed rule and receive public comment. Response to comments received can be found in Appendix A of this document.

LEAD

Lead is a naturally occurring metal found in the earth's crust. The metal is grayish in color and is soft, malleable, and ductile. It is also a limited electrical conductor and highly impervious to corrosion. This unique combination of physical properties has made it desirable for many uses in industries such as construction, piping, roofing, and lead-acid storage battery manufacturing. As a result, some business operations solely recover lead from lead-bearing materials through secondary smelting operations for use in the abovementioned industries. For some industries, lead is undesirable and considered an impurity to its final product. Lead for these industries results from the melting of recycled scrap metal that contains trace amounts of lead, or it inadvertently enter the process even after inspection to identify scrap metal that may contain lead.

Lead can be released into the ambient air in the form of particles that fall out onto the ground or other surfaces by rain or gravitational settling. Lead is strongly adsorbed in the soil and is generally retained in the upper layers where it does not leach appreciably into the subsoil and groundwater. Lead compounds can be converted to other lead compounds in the environment; however, lead is an element and cannot be destroyed. Because lead does not degrade, previous uses of lead and its releases into the ambient air result in high concentrations of lead that persist in the environment.

Lead is a persistent pollutant, and once deposited out of the air, lead can subsequently be re-suspended in the ambient air. In addition, because of the persistence of lead, lead emissions contribute to, in sufficient concentrations across multiple pathways, cause impacts for some years into the future (73 FR 66971). This cycling of lead in the environment means people can be exposed to lead that was emitted just yesterday or emitted years ago (EPA, 2014). Furthermore, lead emitted into the air is predominantly in particulate form, which can be transported long or short distances depending on particle size (73 FR 66971).

Thus, lead can affect communities surrounding lead melting facilities as well as those not immediately adjacent to these facilities. Reducing the ambient lead concentration limit to 0.100 µg/m^3 will minimize lead emissions from lead melting facilities from directly inhaled lead particulates, and further reducing the accumulation of surface dust and lead in the soil that can over time re-enter the air through re-suspension.

HEALTH EFFECTS

Lead is classified as a "criteria pollutant" under the federal Clean Air Act. The Office of Environmental Health Hazard Assessment (OEHHA) also identifies it as a carcinogenic toxic air contaminant (TAC). Chronic health effects include problems such as nervous and reproductive system disorders, neurological and respiratory damage, cognitive and behavioral changes, and hypertension. Exposure to lead can also potentially increase the risk of contracting cancer. Lead is a multipathway toxic air contaminant. It can enter the body through inhalation or ingestion. Exposure to lead emitted into the ambient air (air-related lead) can occur directly by inhalation, or indirectly by ingestion of lead-contaminated food, water or other materials including dust and soil. These exposures occur as lead emitted into the ambient air is distributed to other environmental media such as water or land. The emissions can contribute to human exposures via indoor and outdoor dusts, outdoor soil, and food and drinking water, as well as inhalation of air (73 FR 66971). Multiple studies of the relationship between lead exposure and blood lead in children have shown young children's blood lead levels to reflect lead exposures from ambient air levels, as well as exposure due to lead in surface dust (EPA, 2014). Young children are especially susceptible to the effects of environmental lead because their bodies accumulate lead more readily than do those of adults, and because they are more vulnerable to certain biological effects of lead including learning disabilities, behavioral problems, and deficits in IQ.

AFFECTED SOURCES

Based on lead emissions inventories reported to the SCAQMD AER program (i.e., for years 2010 through 2013) and information available from the SCAQMD permitting database, there are approximately 13 metal melting facilities expected to be subject to PR 1420.2. Cumulatively these facilities melt more than 50,000 tons of lead annually through a combination of metal melting furnaces.

PROPOSED RULE 1420.2

The purpose of PR 1420.2 is to protect public health by reducing public exposure to lead emissions from metal melting facilities and to help ensure attainment and maintenance of the NAAQS for lead. PR 1420.2 will initially require metal melting facilities to comply with an ambient air lead concentration limit of 0.150 µg/m^3, averaged over any consecutive 30 days. Beginning January 1, 2018, the ambient air lead concentration limit will be lowered to 0.100 µg/m^3, averaged over any consecutive 30 days. In addition to the ambient air lead concentration limit, PR 1420.2 contains requirements for lead point source emissions controls and standards, ambient air monitoring, total enclosures of areas where metal melting operations and associated operations are conducted, housekeeping and maintenance activity measures, periodic source testing, and reporting and recordkeeping requirements. Metal melting facilities that exceed the ambient air concentration

limits will be subject to additional requirements that are necessary to attain the applicable ambient air concentration limits of the proposed rule, including enhanced emission controls, total enclosures with negative air, housekeeping measures, and Compliance Plan submittal and implementation.

JUSTIFICATION FOR LOWERING AMBIENT AIR TO 0.100 µg/m^3

An ambient lead concentration limit of 0.100 µg/m^3 will be more health protective for communities that live around metal melting facilities, particularly younger children. There is substantial scientific justification provided through EPA's development of the 2008 Lead NAAQS and the 2015 Proposed Rule to Retain the Current Lead NAAQS evidence-based framework to support the policy decision to establish an ambient limit of 0.100 µg/m^3. The detailed discussion in Chapter 1, Section "Justification for Lowering Ambient Air to 0.100 µg/m^3" provides a description of EPA's evidence-based framework to establish the 2008 Lead NAAQS of 0.15 µg/m^3 and key policy judgments made regarding the level of health protection and margin of safety for the national standard. As a regional air agency, developing a source-specific-rule for metal melting facilities, the SCAQMD staff is recommending policy decisions that are more health protective for communities, particularly young children, that are affected by metal melting facilities regulated under Proposed Rule 1420.2. The discussion in Chapter 1 substantiates the policy decision to establish an ambient lead concentration limit of 0.100 µg/m^3, with some key points of that discussion highlighted below:

- No safe blood level of lead in children has been identified (CDC, 2012a)
- The developing nervous system in children is among the sensitive-- if not the most sensitive-endpoints. (73 FR 66976)
- Lead affects children's IQs at exposure levels appreciably lower than recognized. (CHPAC, 2105)
- Pre-school children or children under five years old are the most vulnerable to exposure and adverse health effects, and thereby represent the greatest at-risk population. (EPA, 2013)
- Younger children absorb substantially more lead than adults, especially children below 2 years of age. (OEHHA, 2009)
- No study has determined a level of lead in blood that does not impair child cognition. Further, the effects are long-lasting. Damage to a child's developing brain from lead is not reversible. (AAP, 2008)
- CASAC commented that ''a population loss of 1–2 IQ points is highly significant from a public health perspective.'' (EPA, 2008)
- Air-to-blood ratio of 1:10 is also supported by EPA's evidence based air-related IQ loss data and is even more health protective (CHPAC, 2008b)

Based on all the foregoing, the evidence supports the District's policy decision to establish a final lead limit in ambient air at 0.100 µg/m^3.

SOCIOECONOMIC ASSESSMENT

A socioeconomic analysis has been conducted and was released for public review and comment on August 5, 2015, with an update version released on September 2, 2015.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Pursuant to the California Environmental Quality Act (CEQA) and SCAQMD Rule 110, the SCAQMD staff evaluated the proposed project and prepared a Draft Environmental Assessment (EA), which was circulated for public review from July 17, 2015 to August 18, 2015. On July 21, 2015, a Revised Draft EA was circulated for public review and the original comment period was extended to August 19, 2015. The public workshop meeting also solicited public input on any potential environmental impacts from the proposed project. Comments received at the public workshops on any environmental impacts were considered when developing the final CEQA document for this rulemaking.

CHAPTER 1: BACKGROUND

INTRODUCTION

The purpose of PR 1420.2 is to protect public health by reducing public exposure to lead emissions from metal melting facilities and to help ensure attainment and maintenance of the NAAQS for lead. As required by the federal Clean Air Act, the U.S. EPA periodically reviews the standard to determine if changes are warranted. Based on review of health studies, the U.S. EPA has determined that the standard of 1.5 $\mu g/m^3$ set in 1978 was not sufficient to protect public health and welfare with an adequate margin of safety. The standard has been lowered to 0.15 $\mu g/m^3$ based on studies that demonstrate health effects at much lower levels of lead exposure than previously believed. The new standard provides increased protection for children and other at-risk populations against an array of health effects, most notably neurological effects in children, including neurocognitive and neurobehavioral effects.

On October 15, 2008, the EPA amended both the primary and secondary NAAQS for lead from a level of 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$ averaged over a rolling 3-month period. EPA also adopted changes to monitoring and reporting requirements. On December 31, 2010, the EPA designated a portion of Los Angeles County as non-attainment for the 2008 NAAQS for lead based on monitored air quality data from 2007-2009 that indicated a violation of the NAAQS near a large lead-acid battery recycling facility. Even before this designation, SCAQMD Rule 1420.1 – Emission Standards for Lead from Large Lead-acid Battery Recycling Facilities was adopted on November 5, 2010 to control emissions of lead from large lead-acid battery recycling facilities in order to reduce lead emissions and help ensure attainment with the 2008 NAAQS for lead of 0.150 $\mu g/m^3$.

In May of 2014, the U.S. EPA released its "Policy Assessment for the Review of the Lead National Ambient Air Quality Standards," reaffirming the primary (health-based) and secondary (welfare-based) staff conclusions regarding whether to retain or revise the current standards. As a result, in January of 2015 the U.S. EPA proposed that the ambient air lead concentration standard of 0.15 $\mu g/m^3$ averaged over a rolling 3-month period remain unchanged. The 90-day comment period for this proposal ended on April 6, 2015 and the U.S. EPA has not yet issued a final rule.

Rule 1420.1 has proven effective for attainment demonstration with the lead NAAQS by the large lead-acid battery recycling industry. However, SCAQMD staff is concerned with lead emissions from the broader industry source category of metal melting. The 2012 Lead SIP identified amendment of SCAQMD Rule 1420 – Emissions Standards for Lead as the primary lead control measure. During the rule development process for PAR 1420, the SCAQMD staff conducted a comprehensive review of lead emissions data. The review took into consideration multiple data sources including emissions reports from the SCAQMD AER Program, U.S. EPA's Toxic Release Inventory (TRI) database, permitting data, compliance data, source test results garnered from the AB 2588 Air Toxics Program, and ambient air lead monitoring data.[1] Facilities were categorized based on high emissions, ambient air monitoring data, and similar process types. Based on this

[1] The supporting documentation for this evaluation includes the following sources: 2010-2013 SCAQMD AER Data, Permitting data for metal melting furnaces, 1420 Compliance Plans, Source tests from AB2588 program for affected facilities, and SCAQMD ambient air lead data for GERDAU and Trojan Battery. This information is available upon request (subject to the SCAQMD's Public Records Request Guidelines).

review, SCAQMD staff determined that facilities sharing the common process of metallurgical or metal melting activities, and categorized hereon as the metal melting industry, is a significant stationary source of lead emissions in the Basin. Further, a review of historical ambient air lead concentration data measured by the SCAQMD's air monitoring network has indicated that some metal melting facilities have the potential for elevated ambient concentrations of lead. During the review of available lead emissions data for years 2010 - 2012, SCAQMD staff also identified several petroleum refineries, a municipal trash incinerating facility, and a glass making facility with high reported emissions of lead. However, the majority of the lead emissions reported by these sources were emissions calculated using default lead emission factors from U.S. EPA's *Compilation of Emission Factors (AP-42)* for the combustion of fuels containing trace amounts of lead. Additionally, fugitive lead emissions reported by these facilities to the TRI database use conservative calculations such as a mass balance equation considering the amount of lead brought on-site minus the amount of lead in the final product, the amount released in wastewater, and the amount disposed as solid waste. Lastly, there was no available ambient air lead monitoring data for these facility types showing elevated ambient lead levels. These sources are currently subject to Rule 1420 and the lead emissions from these source categories will be further reviewed and addressed in a future amendment to Rule 1420.

Currently, Rule 1420 applies to metal melting facilities. However, since the SCAQMD Governing Board adopted Rule 1420 in 1992, an abundance of new and updated information including, but not limited to, lead emissions data, ambient air monitoring data and emissions control techniques has become available. Further, the lead NAAQS has been lowered tenfold from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$ averaged over a rolling 3-month period. Although existing federal and state regulations also control lead emissions from this source category, additional requirements similar to those that have effectively reduced emissions from large lead-acid battery recyclers would more adequately protect public health. Rule 1420 currently imposes an ambient air lead concentration limit of 1.5 $\mu g/m^3$. Historical and current ambient air lead monitoring data from SCAQMD source-oriented monitors (see below under "2008 NAAQS Attainment Demonstration") show elevated concentrations of lead at some metal melting facilities. Additional control measures are necessary for the metal melting industry to ensure no violations of the current NAAQS of 0.15 $\mu g/m^3$. The 2010 Clean Communities Plan (CCP) specified that the SCAQMD staff would investigate other sources of lead emissions and identify control measures to address lead emissions from these identified stationary sources. For example, the CCP included control measure Stationary-01 (Lead Emissions), the objective of which is to reduce lead exposure to the public from lead related activities and comply with the 2008 adopted NAAQS for lead. Through the preliminary rule development efforts for PAR 1420, SCAQMD staff recognized the difficulty in developing lead control requirements for this source category within a general lead rule that controls multiple source categories (Rule 1420). As a result, staff is proposing a similar policy approach (i.e., source specific requirements) for metal melting facilities under PR 1420.2. Specifically, the objective of PR 1420.2 is to protect public health by minimizing public exposure to lead emissions and preventing exceedances of the lead NAAQS in the Basin.

PUBLIC PROCESS

PR 1420.2 is being developed through a public process. A working group was formed to provide the public and stakeholders an opportunity to discuss important details about the proposed rule and

provide the SCAQMD staff with important input during the rule development process. The working group and interested parties are comprised of a variety of stakeholders including representatives from industry, consultants, environmental groups, community groups, and public agency representatives. The SCAQMD staff has held six (6) working group meetings. To date, the working group has convened on December 17, 2014, January 20, 2015, February 19, 2015, April 23, 2015, May 13, 2015, and June 12, 2015. A Public Workshop was held on May 14, 2015 to present the proposed rule and receive public comment. Responses to comments received can be found in Appendix A of this document.

LEAD

Lead is a naturally occurring metal found in the earth's crust. The metal is grayish in color and is soft, malleable, and ductile. It is also a limited electrical conductor and highly impervious to corrosion. This unique combination of physical properties has made it desirable for many uses in industries such as construction, piping, roofing, and lead-acid storage battery manufacturing. As a result, some business operations solely recover lead from lead-bearing materials through secondary smelting operations for use in the abovementioned industries. For some industries, lead is undesirable and considered an impurity to its final product. Lead for these industries results from the melting of recycled scrap metal that either contain trace amounts of lead, or inadvertently enter the process even after inspection to identify scrap metal that may contain lead.

Lead can be released into the ambient air in the form of particles that fall out onto the ground or other surfaces by rain or gravitational settling. Lead is strongly adsorbed in the soil and is generally retained in the upper layers where it does not leach appreciably into the subsoil and groundwater. Lead compounds can be converted to other lead compounds in the environment; however, lead is an element and cannot be destroyed. Because lead does not degrade, previous uses of lead and its releases into the ambient air result in high concentrations of lead that persist in the environment.

Lead is a persistent pollutant, and once deposited out of the air, lead can subsequently be resuspended in the ambient air. In addition, because of the persistence of lead, lead emissions contribute to, in sufficient concentrations across multiple pathways, cause impacts for some years into the future (73 FR 66971). This cycling of lead in the environment means people can be exposed to lead that was emitted just yesterday or emitted years ago (EPA, 2014). Furthermore, lead emitted into the air is predominantly in particulate form, which can be transported long or short distances depending on particle size (73 FR 66971).

Thus, lead can affect communities surrounding lead melting facilities as well as those not immediately adjacent to these facilities. Reducing the ambient lead concentration limit to 0.100 $\mu g/m^3$ will minimize lead emissions from lead melting facilities from directly inhaled lead particulates, and further reducing the accumulation of surface dust and lead in the soil that can over time re-enter the air through re-suspension.

HEALTH EFFECTS OF LEAD

Lead is classified as a "criteria pollutant" under the federal Clean Air Act. The OEHHA also identifies it as a carcinogenic TAC. Chronic health effects include problems such as nervous and

reproductive system disorders, neurological and respiratory damage, cognitive and behavioral changes, and hypertension. Exposure to lead can also potentially increase the risk of contracting cancer. Lead is a multipathway toxic air contaminant. It can enter the body through inhalation or ingestion. Exposure to lead emitted into the ambient air (air-related lead) can occur directly by inhalation, or indirectly by ingestion of lead-contaminated food, water or other materials including dust and soil. These exposures occur as lead emitted into the ambient air is distributed to other environmental media such as water or land. The emissions can contribute to human exposures via indoor and outdoor dusts, outdoor soil, and food and drinking water, as well as inhalation of air (73 FR 66971). Multiple studies of the relationship between lead exposure and blood lead in children have shown young children's blood lead levels to reflect lead exposures from ambient air levels, as well as exposure due to lead in surface dust (EPA, 2014). Young children are especially susceptible to the effects of environmental lead because their bodies accumulate lead more readily than do those of adults, and because they are more vulnerable to certain biological effects of lead including learning disabilities, behavioral problems, and deficits in IQ. The Center for Disease Control and Prevention has summarized these effects in Figure 1-1 below:

Figure 1-1: Health Effects of Lead

JUSTIFICATION FOR LOWERING AMBIENT AIR TO 0.100 µg/m^3

During the rulemaking process, some industry representatives commented that the SCAQMD staff must provide a scientific justification for a 0.100 µg/m^3 ambient lead limit. The following provides the justification for the proposed ambient lead limit in PR 1420.2. As discussed below, the SCAQMD staff relied on the EPA's 2008 review of the Lead NAAQS and the EPA's 2015 Proposed Rule to Retain the Current Lead NAAQS as the basis for establishing the 0.100 µg/m^3 ambient lead limit. An ambient concentration limit of 0.100 µg/m^3 is supported by scientific information presented during the development of the 2008 Lead NAAQS and the 2015 Proposed Rule to Retain the Current Lead NAAQS. The following discusses the general approach and key assumptions that were the basis of EPA's evaluation of the Lead NAAQS. As explained in more detail below, in proposing an ambient concentration limit of 0.100 µg/m^3, the SCAQMD made policy decisions that are more protective of human health than the choices made by EPA in proposing to retain an ambient concentration limit of 0.15 µg/m^3. In particular, the SCAQMD proposes a more prophylactic approach for protecting the health of children, particularly those under five years of age, that live in communities near lead metal facilities in the Basin. We also

note that, while EPA has proposed retaining its existing standard of 0.150 μg/m^3, it has not finalized whether to lower the standard or not. (EPA, 2015)

Establishing the 2008 Lead NAAQS and the 2015 Proposed Rule to Retain the Current Lead NAAQS

The 2008 Lead NAAQS and 2015 Proposed Rule to Retain the Current Lead NAAQS reflect an evidenced-based framework that took into consideration the much-expanded evidence on the neurocognitive health effects of lead in children. EPA focused on the developmental neurotoxicity in children, with IQ decrement as the risk metric. After examining the wide variety of health endpoints associated with lead exposures, EPA concluded that "there is general consensus that the developing nervous system in young children is the most sensitive and that neurobehavioral effects (specifically neurocognitive deficits), including IQ decrements, appear to occur at lower blood levels than previously believed (i.e., at levels <10 μg/dL). (EPA, 2008)

In establishing the lead NAAQS, the EPA used an evidence-based framework, referred to as the air-related IQ loss framework, which shifts focus from identifying an appropriate target population mean blood lead level and instead focuses on the magnitude of effects of air-related lead on neurocognitive functions such as IQ loss (73 FR 66971). The two primary inputs to EPA's evidence-based, air-related IQ loss framework are air-to blood ratios and concentration-response (C-R) functions for the relationship between blood lead and IQ response in young children. The framework derives estimates of mean air-related IQ loss through multiplication of the following factors:

- Ambient lead standard level (μg/m^3),
- Air-to-blood ratio in terms of μg/dL blood lead per μg/m^3 air concentration, and
- Slope for the concentration-response (C-R) function in terms of points IQ decrement per μg/dL blood lead.

Application of the framework also entailed consideration of an appropriate level of protection from air-related IQ loss to be used in conjunction with the framework, such as an average of level of IQ loss and an adequate margin of safety. The framework provides for estimation of a mean air-related IQ decrement for young children in the high end of the national distribution of air-related exposures. It does so by focusing on children exposed to air-related lead in those areas with elevated air lead concentrations equal to specific potential standard levels. (EPA, 2014).

Air-to-Blood Level Ratio

The air-to-blood level ratio represents the relationship between the lead concentration in the air measured in μg/m^3 and the associated blood lead level measured in μg/deciliter (μg/dL). A ratio of 1:5 means that 1 μg/m^3 increase of lead in the air will result in a blood lead level of 5 μg/dL for a given population. In the 2008 Lead NAAQS and 2015 Proposed Rule to Retain the Current Lead NAAQS, EPA concluded that for each μg/m^3 increase of lead in air, children's blood lead levels increase by 5–10 μg/dL, i.e., the air-to-blood ratio ranged from 1:5 to 1:10. EPA selected an air-to-blood ratio of 1:7 "as a generally central value within this range." (73 FR 67002-67004).

Concentration-Response Functions

In establishing the 2008 Lead NAAQS and the 2015 Proposed Rule to Retain the Current Lead NAAQS, EPA considered the evidence regarding the quantitative relationships between IQ loss

and blood lead levels. EPA focused on those concentration-response functions that are based on blood lead levels which most closely reflect today's population of children in the U.S., although recognizing that the evidence does not include analyses involving mean blood lead levels as low as the mean blood lead level for today's children. EPA identified four analyses that have a mean blood lead level closest to today's mean for U.S. children; these yielded four slopes ranging from -1.56 to -2.94, with a median of -1.75 IQ points per μg/dL. In addition, the Administrator determined that it is appropriate to give more weight to the central estimate for this set of functions, which is the median of the set of functions, and not to rely on any one function. (73 FR 67003-67004)

IQ Decrement

EPA also concluded that the concentration-response relationship between blood level and IQ loss is nonlinear, with greater incremental IQ loss occurring at lower blood lead levels. Accordingly since studies show that the average lead blood levels for children in the United States has decreased over the years, and that even at these lower levels there are significant neurocognitive impacts such as IQ loss, the analyses of children with blood lead levels closest to those of children in the United States today were most relevant. In selecting the lead NAAQS, the EPA Administrator concluded that, "an air-related IQ loss of 2 points should be used in conjunction with the evidence-based framework in selecting an appropriate level for the standard." (73 FR 67002 - 67005)

Establishing the 2008 Lead NAAQS

Table 1-1 below summarizes the estimates of air-related mean IQ loss for children exposed to various ambient air lead concentrations and was used in establishing the 2008 Lead NAAQS. As previously discussed, EPA's evidence-based air-related IQ loss framework found that the air-to-blood ratio ranged from 1:10 to 1:5 and the EPA Administrator selected a 1:7 air-to-blood ratio as a generally central value within this range. Based on an air-to-blood ratio of 1:7 and use of a mean air-related IQ loss of no more than 2 points, EPA selected an ambient lead concentration limit of 0.15 $\mu g/m^3$ (see highlighted box in Table 1-1). At this level, children's IQ levels would be decreased by 1.8 points, assuming a 1:7 air to blood ratio. At an ambient lead concentration of 0.10 $\mu g/m^3$, children's IQ level would be decreased by 1.2 points using the same 1:7 air to blood level ratio assumption.

Table 1-1
Estimates of Air-Related Mean IQ Loss for the Subpopulation of Children Exposed at the Level of the Highlighting an Ambient Lead Concentration Limit of 0.150 µg/m^3
(Source: 73 FR 67005 and 67006)

Potential level for standard (µg/m³)	Air-related mean IQ loss (points) for the subpopulation of children exposed at level of the standard		
	IQ loss estimate is based on median slope of 4 C–R functions with blood Pb levels closer to those of today's U.S. children (range shown for estimates based on lowest and highest of 4 slopes)		
	Air-to-blood ratio		
	1:10	1:7	1:5
0.50	>5*	>5*	4.4 (3.9–7.4)
0.40		4.9 (4.4–8.2)	3.5 (3.1–5.9)
0.30	5.3 (4.7–8.8)	3.7 (3.3–6.2)	2.6 (2.3–4.4)
0.25	4.4 (3.9–7.4)	3.1 (2.7–5.1)	2.2 (2.0–3.7)
0.20	3.5 (3.1–5.9)	2.5 (2.2–4.1)	1.8 (1.6–2.9)
0.15	2.6 (2.3–4.4)	1.8 (1.6–3.1)	1.3 (1.2–2.2)
0.10	1.8 (1.6–2.9)	1.2 (1.1–2.1)	0.9 (0.8–1.5)
0.05	0.9 (0.8–1.5)	0.6 (0.5–1.0)	0.4 (0.4–0.7)
0.02	0.4 (0.3–0.6)	0.2 (0.2–0.4)	0.2 (0.2–0.3)

*For these combinations of standard levels and air-to-blood ratios, the appropriateness of the C–R function applied in this table becomes increasingly uncertain such that no greater precision than ">5" for the IQ loss estimate is warranted.

At a level of 0.15 µg/m^3, the Administrator recognized that use of a 1:10 ratio produces an estimate greater than 2 IQ points and use of a 1:5 ratio produces a lower IQ loss estimate. Given the uncertainties and limitations in the air-related IQ loss framework, the Administrator decided to place primary weight on the results from this central estimate (1:7 ratio) rather than estimates derived using air-to-blood ratios either higher or lower than this ratio. (73 FR 67005).

The 2014 Policy Assessment concluded that, "The limited amount of new information available in this review has not appreciably altered the scientific conclusions reached in the last review regarding relationships between Pb in ambient air and Pb in children's blood or with regard to the range of ratios." As a result, the EPA Administrator is recommending to maintain the central estimate of 1:7 rather than estimates derived using higher air-to-blood ratios.

Selecting a 0.100 µg/m^3 Ambient Lead Limit for PR 1420.2

PR 1420.2 requires an ambient lead limit of 0.100 µg/m^3 effective January 1, 2018. This is a policy decision that is supported by the same evidence-based framework used to establish the 2008 Lead NAAQS and the 2015 Proposed Rule to Retain the Current Lead NAAQS.

In developing the 2008 Lead NAAQS, EPA recognized that policy judgments must be made regarding the level of health protection and margin of safety. The available evidence supports a range of choices in setting that level. In reviewing all of the scientific information through the development of the 2008 Lead NAAQS and the 2015 Proposed Rule to Retain the Current Lead NAAQS, the EPA Administrator made a series of policy decisions. For example, the Administrator used a "central value" between 1:10 and 1:15 to represent the air-to-blood lead ratio and a decrement of 2 IQ points, all within the evidence-based framework for establishing a "national" standard for ambient lead. The 2014 Policy Assessment for Review of the Lead NAAQS maintained the same approach and range of ratios stating that, "The limited amount of new information available in this review has not appreciably altered the scientific conclusions reached in the last review regarding relationships between lead in ambient air and lead in children's blood or with regard to the range of ratios. The currently available evidence continues to indicate

ratios relevant to the population of young children in U.S. today, reflecting multiple air-related pathways in addition to inhalation, to be generally consistent with the approximate range of 1:5 to 1:10 given particular attention in the 2008 NAAQS decision, including the "generally central estimate" of 1:7." In doing so, the EPA Administrator recognized that:

> "…there are currently no commonly accepted guidelines or criteria within the public health community that would provide a clear basis for reaching a judgment as to the appropriate degree of public health protection that should be afforded to protect against risk of neurocognitive effects in sensitive populations, such as IQ loss in children." (73 FR 67004).

EPA further acknowledged that "different public health policy judgments could lead to different conclusions regarding the extent to which the current standard provides projection of public health with an adequate margin of safety." (EPA, 2014)

The NAAQS is a national standard for lead which applies uniformly to all parts of the United States. In contrast, PR1420.2 is a source-specific rule that regulates specific lead melting facilities. By establishing an ambient lead limit of 0.100 $\mu g/m^3$, and implementing other requirements in PR1420.2, the rule is designed to minimize the release of point source and fugitive lead emissions from such lead melting facilities and thereby to minimize the accumulation of lead surface and soil dust, both of which are meant to be more health protective. The proposed level considers that communities with children live around lead melting facilities, and it provides additional protection for the population most at-risk from lead emissions: pre-school children under the age of five. EPA has specifically recognized the significant health risks posed in this instance: "…situations of elevated exposure, such as residing near sources of ambient lead can also contribute to increased blood lead levels and increased risk of associated health effects from air-related lead." (73 FR 66976)

As discussed below, the EPA Administrator made a series of policy decisions based on evidenced-based air-related IQ loss framework. Two policy decisions that the SCAQMD staff has focused on are the air-to-blood lead ratio and the IQ decrement, particularly as these issues relate to PR1420.2 as a source-specific rule. In addition, as discussed below, the SCAQMD staff further considered the vulnerability of children to lead. SCAQMD staff is recommending a more preventative approach with an ambient lead limit of 0.100 $\mu g/m^3$ to provide greater health protection for communities, and more specifically for young children, that live near lead melting facilities.

1:10 Air-to-Blood Lead Ratio

An air-to-blood lead ratio of 1:10 would support a more protective standard for children (CHPAC, 2008b). As discussed above, EPA's evidence-based air-related IQ loss framework found that the air-to-blood lead ratio ranges from 1:10 to 1:5, and the EPA Administrator selected a 1:7 air-to-blood ratio as a "generally central value within this range." (73 FR 67005 and 67006). As we now explain, the ambient lead concentration limit of 0.100 $\mu g/m^3$ under PR 1420.2 is supported by EPA's evidence-based air-related IQ loss framework, assuming EPA's judgment of air-related IQ loss of 2 points and an air-to-blood ratio of 1:10. The SCAQMD's policy decision to use an

air-to-blood ratio of 1:10 is also supported by EPA's evidence based air-related IQ loss data and is even more health protective, particularly for young children living near lead melting facilities.

An air-to-blood ratio of 1:10 is supported by comments made by scientists, physicians, and researchers. During the development of the 2008 Lead NAAQS, EPA received scientific recommendations from the Clean Air Scientific Advisory Committee (CASAC), a federal advisory committee independently chartered to provide extramural scientific information and advice to the EPA Administrator and other officials of the EPA[2]. The CASAC recommended that EPA consider an air-to-blood ratio ''closer to 1:9 to 1:10 as being most reflective of current conditions.'' (73 FR 67001). The higher attained blood lead concentrations that are modeled with a ratio of 1:10 would support a more protective standard for children. (CHPAC, 2008b). Similar to the advice from CASAC, many commenters, including EPA's Children's Health Protection Advisory Committee, the Northeast States For Coordinated Air Use Management (NESCAUM) and the Michigan Department of Environmental Quality recommended that EPA consider ratios higher than the upper end of the range used in the proposal (1:7), such as values on the order of 1:9 or 1:10 or somewhat higher. They also rejected the lower ratios used in the proposal as being inappropriate for application to today's children. Commenters supporting such higher ratios cited ratios resulting from a study noted by CASAC (Schwartz and Pitcher, 1989), as well as others by Hayes et al. (1994) and Brunekreef et al. (1983) They also cited air-to- blood ratio estimates from the exposure/ risk assessment (73 FR 67001). The exposure/risk assessment evaluated the quantitative human exposure and health risk assessments in order to inform EPA during the 2008 review of the NAAQS for lead.

As shown in Table 1-2, when EPA's same evidence-based framework is employed using an air-to-blood ratio of 1:10, with a loss of less than 2 IQ points, the corresponding ambient limit of 0.100 $\mu g/m^3$ is necessary to protect public health.

[2] The CASAC for the 2008 NAAQS is made up of the following members: Rogene Henderson, Ph.D., Chair, Clean Air Scientific Advisory Committee, Scientist Emeritus, Lovelace Respiratory Research Institute; Donna Kenski, Ph.D., Director of Data Analysis, Lake Michigan Air Directors Consortium, (LADCO); Ellis Cowling, Ph.D., University Distinguished Professor At-Large, Emeritus, North Carolina State University; Armistead (Ted) Russell, Ph.D., Gerogia Power, Distinguished Professor of Environmental Engineering, Georgia Institute of Technology; James D. Crapo, M.D., Professor, Department of Medicine, National Jewish Medical and Research Center; Jonathan M. Samet, M.D., Professor and Chairman, Department of Epidemiology, Bloomberg School of Public Health, John Hopkins University; Douglas Crawford-Brown, Ph.D., Director, Institute for Environment; and Professor, Department of Environmental Sciences and Engineering, University of North Carolina at Chapel Hill

Table 1-2
Estimates of Air-Related Mean IQ Loss for the Subpopulation of Children Exposed at the Level of the Highlighting an Ambient Lead Concentration Limit of 0.100 µg/m^3
(Source: 73 FR 67005 and 67006)

Potential level for standard (µg/m³)	Air-related mean IQ loss (points) for the subpopulation of children exposed at level of the standard		
	IQ loss estimate is based on median slope of 4 C–R functions with blood Pb levels closer to those of today's U.S. children (range shown for estimates based on lowest and highest of 4 slopes)		
	Air-to-blood ratio		
	1:10	1:7	1:5
0.50	>5*	>5*	4.4 (3.9–7.4)
0.40		4.9 (4.4–8.2)	3.5 (3.1–5.9)
0.30	5.3 (4.7–8.8)	3.7 (3.3–6.2)	2.6 (2.3–4.4)
0.25	4.4 (3.9–7.4)	3.1 (2.7–5.1)	2.2 (2.0–3.7)
0.20	3.5 (3.1–5.9)	2.5 (2.2–4.1)	1.8 (1.6–2.9)
0.15	2.6 (2.3–4.4)	1.8 (1.6–3.1)	1.3 (1.2–2.2)
0.10	1.8 (1.6–2.9)	1.2 (1.1–2.1)	0.9 (0.8–1.5)
0.05	0.9 (0.8–1.5)	0.6 (0.5–1.0)	0.4 (0.4–0.7)
0.02	0.4 (0.3–0.6)	0.2 (0.2–0.4)	0.2 (0.2–0.3)

*For these combinations of standard levels and air-to-blood ratios, the appropriateness of the C–R function applied in this table becomes increasingly uncertain such that no greater precision than ''>5'' for the IQ loss estimate is warranted.

Population Significance of Loss of IQ Points

Communities that are near metal melting facilities can suffer a significant loss of IQ points. In its July 2008 advice to EPA, CASAC commented that ''a population loss of 1–2 IQ points is highly significant from a public health perspective.'' CASAC further emphasized its view that an IQ loss of 1–2 points should be ''prevented in all but a small percentile of the population—and certainly not accepted as a reasonable change in mean IQ scores across the entire population.'' Recommendations from several commenters, including the American Academy of Pediatrics (AAP) and state health agencies commenting on this issue, generally agreed with the view emphasized by CASAC that air-related IQ loss of a specific magnitude, such as on the order of 1 or 2 points, should be prevented in a very high percentage (e.g., 99.5%) of the population. (73 FR 67000).

The issue of individual-level versus population-level risk also pertains to the implications of the magnitude of decrease in cognitive function or increase in behavioral problems per unit increase in blood lead level. Although fractional changes in Full Scale Intelligence Quotient (FSIQ), memory, or attention may not be consequential for an individual, they may be consequential on a population level. At that level, small lead-associated decreases in cognitive function could increase the number of individuals at additional risk of educational, vocational, and social failure. It could also decrease the number of individuals with opportunities for academic and later-life success. (EPA, 2013) Small shifts in the population mean IQ can be highly significant from a public health perspective. Such shifts could translate into a larger proportion of the population functioning at the low end of the IQ distribution, as well as a smaller proportion of the population functioning at the high end of the distribution. (EPA, 2013). Additionally, small lead-associated increases in the population mean blood pressure could result in an increase in the proportion of the population with hypertension that is significant from a public health perspective. (EPA, 2013)

Ambient Limit of 0.100 µg/m^3 is More Health Protective for Children

Establishing an ambient limit of 0.100 µg/m^3 will be more protective of children that live around facilities subject to PR 1420.2, particularly younger children. Lead poisoning is a preventable disease. No safe blood level of lead in children has been identified. (CDC, 2012a). Preventing lead exposure rather than responding after the exposure has taken place is consistent with recommendations from the Centers for Disease Control and Prevention's (CDC) Advisory Committee for Childhood Lead Poisoning Prevention, which recommends that the CDC as well as other local, state, and federal agencies "shift priorities to primary prevention." (CDC, 2012b).

Neurocognitive health effects in young children are recognized as the most sensitive endpoint associated with blood lead concentrations. Evidence continues to indicate that neurocognitive effects in young children may not be reversible and may have effects that persist into adulthood. (EPA, 2014). In addition, in a letter to EPA in 2008 the Academy of Pediatrics stated that, "No study has determined a level of lead in blood that does not impair child cognition. Further, the effects are long-lasting. Damage to a child's developing brain from lead is not reversible." (AAP, 2008). Similarly, EPA states in its 2013 Integrated Science Assessment for Lead that, "Evidence suggests that some lead-related cognitive effects may be irreversible and that the neurodevelopmental effects of lead exposure may persist into adulthood." (EPA, 2013).

Among the wide variety of health endpoints associated with lead exposures, there is general consensus that the developing nervous system in children is among the sensitive-- if not the most sensitive-endpoints. (73 FR 66976). Multiple epidemiologic studies conducted in diverse populations of children consistently demonstrate the harmful effects of lead exposure on cognitive function. The effects can be measured by IQ decrements, decreased academic performance and poorer performance on tests of executive function. (EPA, 2013). Lead-associated decline of several points might be sufficient to drop that individual into the range associated with increased risk of educational, vocational, and social failure. (EPA 2008). In addition, a study found that in a group of 7-year old children exposed to lead before the age of 3 years old, IQ continued to fall, even after the blood lead level had declined. (AAP, 2008; Chen et al, 2005).

Compounding the effects of lead on developing children are studies indicating that children are more vulnerable than adults when exposed to lead. Air-to-blood ratios are generally higher for children than those for adults, and they are higher for young children than older children. (EPA, 2014). Pre-school children or children under five years old are the most vulnerable to exposure and adverse health effects, and thereby represent the greatest at-risk population. Higher blood lead levels in pre-school aged children compared to the rest of childhood are related to behaviors that increase environmental exposure, such as hand-to-mouth activity. Children may have increased exposure to lead compared with adults because of children's behaviors and activities (including increased hand-to-mouth contact, crawling, and poor hand-washing), differences in diets, and biokinetic factors (absorption, distribution, metabolism, and excretion). (EPA, 2013).

In addition, younger children absorb substantially more lead than adults, especially children below 2 years of age. These children have a faster metabolic rate, resulting in a proportionately greater daily intake of lead through food. They also have a less developed blood-brain barrier and therefore greater neurological sensitivity; a faster resting inhalation rate; and a rapidly developing nervous system. (OEHHA, 2009). As previously referenced, multiple studies of the relationship

between lead exposure and blood lead in children have shown young children's blood lead levels reflect lead exposures from ambient air levels as well as exposure due to lead in surface dust. (EPA, 2014).

Blood lead levels are extensively used as an index or biomarker of exposure by national and international health agencies, as well as in epidemiological and toxicological studies of lead health effects and dose-response relationships. Blood lead concentrations, even those below 10 µg/dL, are inversely associated with children's IQ scores at three and five years of age, and associated declines in IQ are greater at these concentrations than at higher concentrations. (Canfield, et al, 2003). Based on a growing body of studies concluding that blood lead levels <10 µg/dL harm children, the Centers for Disease Control and Prevention (CDC) Advisory Committee on Childhood Lead Poisoning Prevention (ACCLPP) recommends a reference level of 5 µg/dL to identify children with blood lead levels that are much higher than most children's levels. This level is based on the 97.5th percentile of the National Health and Nutrition Examination Survey (NHANES)'s blood lead distribution in children. This recommendation is grounded on the weight of evidence that includes studies with a large number and diverse group of children with low blood lead levels and associated IQ deficits. Effects at blood lead levels < 10 µg/dL are also reported for other behavioral domains, particularly attention-related behaviors and poorer academic achievement. Furthermore, new findings suggest that the adverse health effects of blood lead levels at less than 10 µg/dL in children extend beyond cognitive function to include cardiovascular, immunological, and endocrine effects. (CDC, 2012a).

The SCAQMD staff believes that the CDC's action to establish a reference level of 5 µg/dL, in lieu of the previous "level of concern" of 10 µg/dL, further substantiates the policy decision to establish an ambient lead concentration limit of 0.100 µg/m^3. EPA's 2014 Policy Assessment states that, "The CDC decision, while emphasizing the critical importance of primary prevention of lead exposure, provides no new guidelines or criteria with regard to the significance of specific IQ decrements…" (EPA, 2014). However, the Academy of Pediatrics cautioned against focusing solely on IQ loss or gain stating, "There are ramifications of lead exposure on other endpoints that have societal and individual implications of great importance." In addition, CASAC member Dr. Susan Korrick, stated that, "the discussion of health policy judgments needs to be carefully considered in light of the fundamental and far reaching public health value of childhood cognitive and neurobehaviorial health." (CASAC, 2013).

EPA's Children's Health Protection Advisory Committee[3] (CHPAC) is a body of external researchers, academicians, health care providers, environmentalists, state and tribal government employees, and members of the public who advise EPA on regulations, research, and communications related to children's health. CHPAC stated in a letter to USEPA Administrator McCarthy that "lead affects children's IQs at exposure levels appreciably lower than recognized…" (CHPAC, 2015). In addition, in a letter to the Administrator on June 16, 2008 regarding the Proposed Rulemaking for the National Ambient Air Quality Standards for Lead, CHPAC stated there is clear scientific evidence to support an ambient lead concentration of 0.100

[3] The legal authority for CHPAC is the Federal Advisory Committee Act (FACA), 5 USC App 2. CHPAC acts in the public interest and supports EPA in performing its duties and responsibilities under Executive Order 13045 of April 21, 1997 (62 Fed Reg 19885; April 23, 1997). CHPAC provides advice on topics such as air and water pollution regulations, chemical safety programs, risk assessment policies, and research, which reflect the wide ranging environmental issues which affect the health of children.

$\mu g/m^3$. The letter specifically referenced the special relevance of such a standard to children because there is a steeper dose-response curve for children's neurological effects at lower levels of exposure. This is due to the fact that a higher ratio of lead air-to-blood lead ratios has been observed in children at lower air lead concentrations. (CHPAC, 2008b).

Summary Conclusion

An ambient lead concentration limit of 0.100 μg/m3 will be more health protective for communities that live around metal melting facilities, particularly younger children. There is substantial scientific justification provided through EPA's development of the 2008 Lead NAAQS and the 2015 Proposed Rule to Retain the Current Lead NAAQS evidence-based framework to support the policy decision to establish an ambient limit of 0.100 $\mu g/m^3$. The above discussion provides a description of EPA's evidence-based framework to establish the 2008 Lead NAAQS of 0.15 $\mu g/m^3$ and key policy judgments made regarding the level of health protection and margin of safety for the national standard. As previously stated, there are currently no commonly accepted guidelines or criteria within the public health community that would provide a clear basis for reaching a judgment as to the appropriate degree of public health protection that should be afforded to protect against risk of neurocognitive effects in sensitive populations, such as IQ loss in children." (73 FR 67004). As a regional air agency, developing a source-specific-rule for metal melting facilities, the SCAQMD staff is recommending policy decisions that are more health protective for communities, particularly young children, that are affected by lead emissions from metal melting facilities regulated under Proposed Rule 1420.2. The above discussion substantiates the policy decision to establish an ambient lead concentration limit of 0.100 $\mu g/m^3$, with some key points of the above discussion highlighted below:

- No safe blood level of lead in children has been identified (CDC, 2012a)
- The developing nervous system in children is among the sensitive-- if not the most sensitive-endpoints. (73 FR 66976)
- Lead affects children's IQs at exposure levels appreciably lower than recognized. (CHPAC, 2105)
- Pre-school children or children under five years old are the most vulnerable to exposure and adverse health effects, and thereby represent the greatest at-risk population. (EPA, 2013)
- Younger children absorb substantially more lead than adults, especially children below 2 years of age. (OEHHA, 2009)
- No study has determined a level of lead in blood that does not impair child cognition. Further, the effects are long-lasting. Damage to a child's developing brain from lead is not reversible. (AAP, 2008)
- CASAC commented that ''a population loss of 1–2 IQ points is highly significant from a public health perspective.'' (EPA, 2008)
- Air-to-blood ratio of 1:10 is also supported by EPA's evidence based air-related IQ loss data and is even more health protective (CHPAC, 2008b)

Based on all the foregoing, the evidence supports the District's policy decision to establish a final lead limit in ambient air at 0.100 $\mu g/m^3$.

REGULATORY HISTORY

The metal melting industry has been subject to regulation regarding lead for more than two decades. Below is a chronology of regulatory activity:

- November 1970, CARB set the state ambient air quality standard for lead at 1.5 $\mu g/m^3$ averaged over 30 days.
- October 1978, the U.S. EPA adopted the NAAQS for lead, requiring attainment with a lead ambient concentration of 1.5 $\mu g/m^3$ averaged over a calendar quarter.
- September 1992, the SCAQMD adopted Rule 1420 – Emissions Standard for Lead. The rule incorporated the state ambient air quality standard and required control devices on lead emission points, control efficiency requirements for lead control devices, housekeeping, and monitoring or modeling of ambient air quality.
- October 1992, OEHHA classified lead as a carcinogenic toxic air contaminant and assigned to it a cancer potency factor and a cancer unit risk factor.
- January 1993, CARB adopted the Airborne Toxic Control Measure for Emissions of Toxic Metals from Non-Ferrous Metal Melting. The state regulation required control devices for lead and other toxic metal emission points, control efficiency requirements for control devices, fugitive emission control, and recordkeeping.
- June 1997, the U.S. EPA adopted the National Emissions Standards for Hazardous Air Pollutants (NESHAP) from Secondary Lead Smelting. The federal regulation required lead emission concentration limits of lead control devices, control of process fugitive emissions, monitoring, recordkeeping, and reporting.
- On July 16, 2007, EPA finalized a regulation affecting lead emissions from all lead-acid battery manufacturing facilities that are area sources. The federal regulation required lead emission concentration limits, testing, monitoring, recordkeeping, and reporting requirements.
- On October 15, 2008, the U.S. EPA signed into regulation an amended NAAQS for lead of 0.15 $\mu g/m^3$.
- November 5, 2010, the SCAQMD adopted Rule 1420.1 – Emissions Standard for Lead from Large Lead-acid Battery Recycling Facilities. The rule established requirements for total enclosures of areas used in the lead-acid battery recycling operation, ambient air lead concentration limits of 0.150 $\mu g/m^3$ averaged over any consecutive 30 days, ambient air monitoring, and housekeeping practices. Additional rule amendments followed the initial adoption in January of 2014, March of 2014, and March of 2015. In those amendments ambient air lead concentration limits were ultimately reduced to 0.100 $\mu g/m^3$.
- December 14, 2010, the U.S. EPA made final revisions to the ambient monitoring requirements for measuring lead in the air. These amendments expand the nation's lead monitoring network to better assess compliance with the 2008 National Ambient Air Quality Standards for lead.
- January 2, 2015, the U.S. EPA proposed that the ambient lead concentration standard of 0.15 $\mu g/m^3$ averaged over a rolling 3-month period remain unchanged. The 90-day comment period for this proposal ended on April 6, 2015 and the regulatory process remain ongoing.

The following provides additional background information about Rule 1420 and the 2008 NAAQS for lead.

Rule 1420

Rule 1420 was adopted in September 1992 and has not been amended since its adoption. Rule 1420 applies to facilities that process or use lead-containing materials. These include, but are not limited to, primary or secondary lead smelters, foundries, lead-acid battery manufacturers or recyclers, and lead-oxide, brass and bronze producers. Rule 1420 is based on the current state ambient air quality standard of 1.5 µg/m^3 averaged over a 30-day period. As a result, the rule needs to be updated to reflect the current NAAQS of 0.15 µg/m^3. The rule includes requirements for point source controls, monitoring, sampling, recordkeeping, and reporting. Rule 1420 requires facilities that process more than two tons of lead per year to submit a Compliance Plan that provides information on how the facility will conduct monitoring, conduct air dispersion modeling, and implement requirements to install and implement point source controls.

2008 NAAQS for Lead

Since U.S. EPA established the initial standard of 1.5 µg/m^3 in 1978, scientific evidence about lead and health has expanded dramatically. More than 6,000 new studies on lead health effects, environmental effects, and lead in the air have been published since 1990. Evidence from these health studies shows that adverse effects occur at much lower levels of lead in the blood than previously thought. As a result, U.S. EPA amended the NAAQS for lead, reducing it from 1.5 µg/m^3 to 0.15 µg/m^3. The 2008 lead NAAQS requires full attainment by each state no later than five years after final designations for attainment status are made. Demonstration of attainment is based on measurements using a rolling 3-month averaging form evaluated over a 3-year period. Measurements are to be determined by U.S. EPA-required monitoring networks within each state which consist of both source-oriented and non-source-oriented monitors. The SCAQMD has already established the required monitoring network for both source and non-source-oriented lead monitors.

Further, in May of 2014, the U.S. EPA released its "Policy Assessment for the Review of the Lead National Ambient Air Quality Standards." In January of 2015 the U.S. EPA proposed that the ambient lead concentration standard of 0.15 µg/m^3 averaged over a rolling 3-month period remain unchanged. The 90-day comment period for this proposal ended on April 6, 2015 and requires further action by the U.S. EPA in order to issue a final rule.

2008 NAAQS ATTAINMENT STATUS

The 2008 NAAQS for lead requires that each state install and operate a network of ambient air lead monitors in order to determine attainment status with the standard. As noted above, two types of monitors are required; those that are population-based (referred to as "non-source-oriented"), and those that are facility-based (referred to as "source-oriented"). The lead attainment assessment conducted by the state of California was based on data from both sets of monitoring networks. On October 14, 2009, the CARB recommended to the U.S. EPA that the South Coast Air Quality Management District portion of Los Angeles County be designated as non-attainment for the 2008 federal lead standard based on data from the ATSF and Rehrig-Pacific Street monitors for Exide Technologies (Exide). On December 31, 2010, the U.S. EPA designated a portion of Los Angeles County, excluding the high desert areas, San Clemente and Santa Catalina Islands (southern Los Angeles County), as nonattainment for the 2008 lead NAAQS and required attainment no later than December 31, 2015. As a result, the SCAQMD Governing Board adopted the 2012 Lead

State Implementation Plan (SIP), outlining the strategies, planning and air pollution control activities to demonstrate attainment with the lead NAAQS before December 31, 2015.

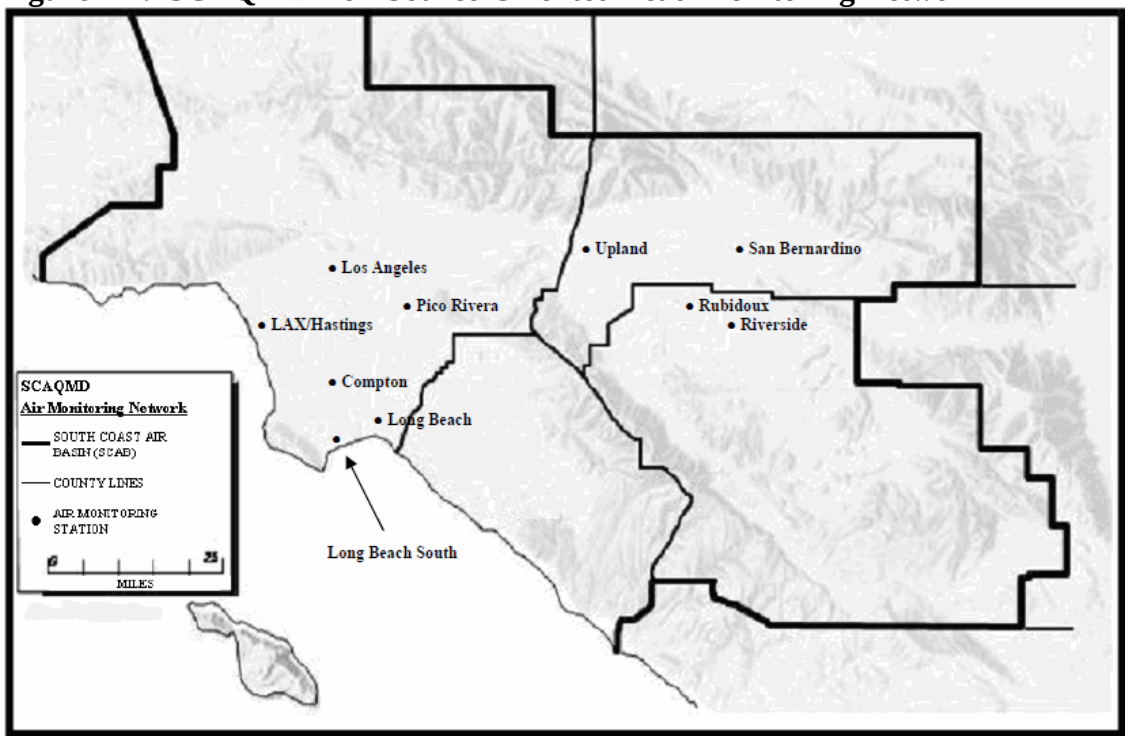
Lead Ambient Air Monitoring Requirements

On December 14, 2010, the U.S. EPA revised the ambient monitoring requirements for measuring lead in the air. Specifically, the U.S. EPA changed the emissions threshold that state monitoring agencies must use to determine if an air quality monitor should be placed near an industrial facility that emits lead (source-oriented monitor). The new lead emissions threshold is 1,000 pounds per year (lbs/yr) of lead emissions reduced from the previous threshold of 1.0 tons per year (tpy). U.S. EPA maintained the 1.0 tpy lead emissions threshold for airports. U.S. EPA also requires lead monitoring in large urban areas, Core Based Statistical Areas with a population of 500,000 people or more (non-source-oriented monitors).

Non-Source-Oriented Monitors

The SCAQMD currently operates a non-source-oriented monitoring network of 10 locations throughout the Basin. The spatial distribution of these sites is shown below in Figure 1-1. Because the SCAQMD's current lead monitoring network meets the minimum requirements for the U.S. EPA non-source-oriented monitoring network as specified in the new lead NAAQS, data from the existing monitors were used to provide an indication of lead attainment status on a regional scale. Data values from measurements made at non-source-oriented monitors in the Basin were reviewed for years 2007 through 2013 and showed concentrations below the 2008 NAAQS for lead of 0.15 $\mu g/m^3$ and range from 0.01 $\mu g/m^3$ to 0.03 $\mu g/m^3$.

Figure 1-2: SCAQMD Non-Source-Oriented Lead Monitoring Network

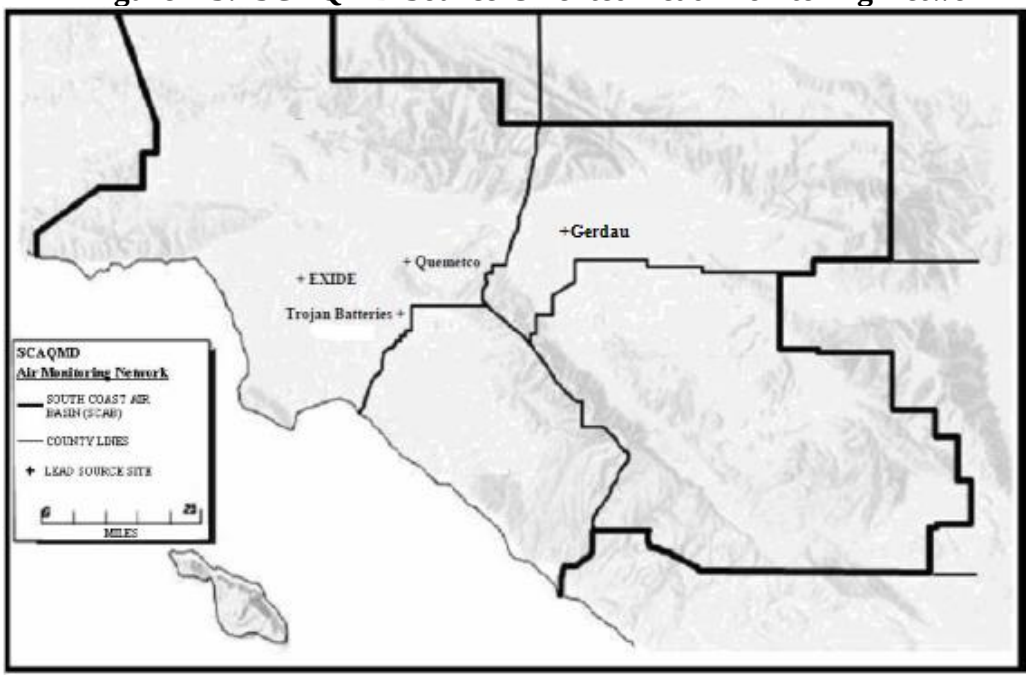


Source-Oriented Monitors

The SCAQMD currently operates existing source-oriented monitoring networks at the following four facilities: Trojan Battery Company in Santa Fe Springs, Quemetco, Inc. in the City of Industry, Exide Technologies in Vernon, and Gerdau in Rancho Cucamonga in order to meet the monitoring requirements of the new lead NAAQS. As discussed on page 1-1, high ambient air lead concentrations from source-oriented monitors at Exide prompted rulemaking to address lead emissions from large lead-acid battery recycling facilities. Consequently, Rule 1420.1 was adopted in November 2010 and established requirements for large lead-acid battery recycling facilities. The SCAQMD continues to operate source-oriented monitors at the Exide and Quemetco sites, and Rule 1420.1 requires these facilities to conduct fence line monitoring. These facilities also must meet an ambient air lead concentration of 0.100 $\mu g/m^3$ averaged over any consecutive 30 days.

The SCAQMD also established a source-oriented monitoring site at the Van Nuys Airport from January 1, 2010 to meet the monitoring requirements of the NAAQS for airports. General aviation aircraft use leaded aviation fuel, and have been identified as a source of lead emissions. Review of the data at the Van Nuys site showed no exceedances of the Pb NAAQS. Monitoring of lead emissions ceased at that site on June 4, 2013 as it was no longer necessary for the SCAQMD to monitor lead emissions at that site according to the final NAAQS for lead that went into effect on January 26, 2011. Data on lead emissions from airports is currently being collected and reviewed by the U.S. EPA. In the April 28, 2015 Federal Register, the U.S. EPA issued an "Advanced Notice of Proposed Rulemaking on Lead Emissions for Piston-Engine Aircraft Using Leaded Aviation Gasoline." Figure 1-2 below shows the locations of SCAQMD's current source-oriented monitoring networks and their respective lead sources.

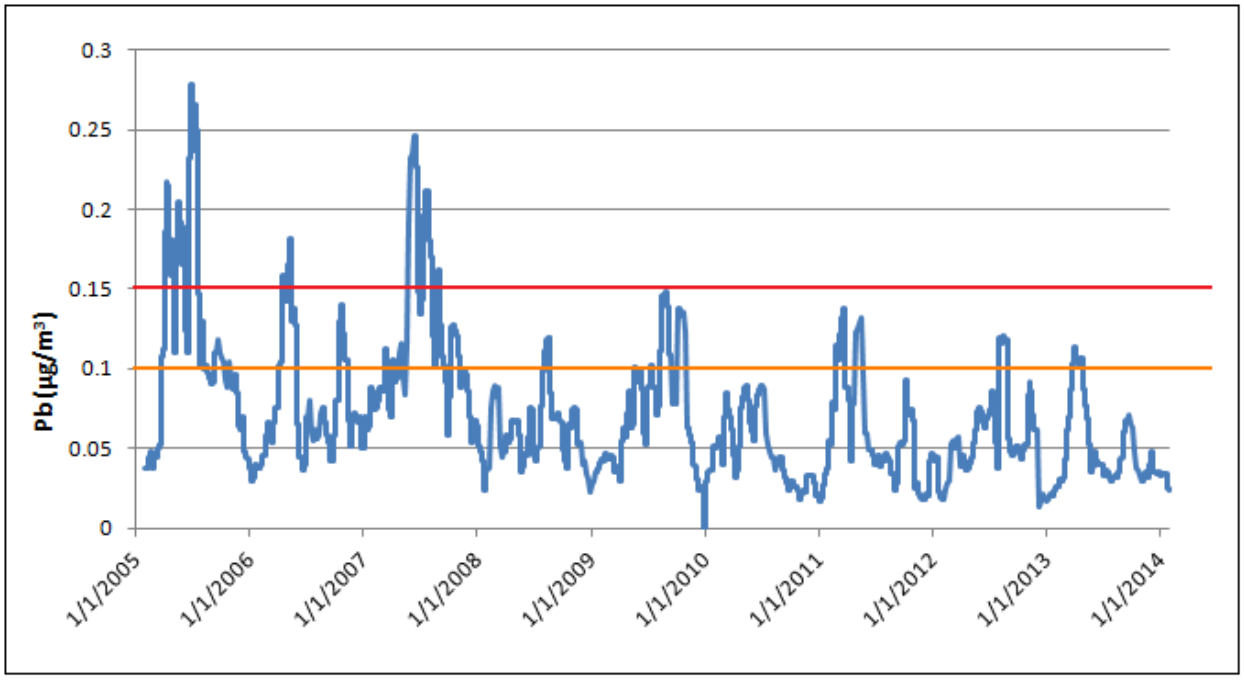
Figure 1-3: SCAQMD Source-Oriented Lead Monitoring Network



Trojan Battery (Source-oriented Monitor)

Based on data from AER reporting years 2005 through 2007, lead emissions at Trojan Battery, a battery manufacturer located in Santa Fe Springs, were reported as 29 lbs/yr and sampling was conducted at one site. The site operates on a 1-in-6 day sampling schedule and had multiple rolling 30-day averages greater than 0.15 µg/m3 between years 2005 and 2011 with the highest average of 0.28 µg/m^3 in June 2005. Additionally, in 2005 through 2007, ambient air lead concentrations showing multiple 3-month rolling averages of greater than 0.15 µg/m3 were also measured (high of 0.21 µg/m^3). These measurements exceed the current NAAQS level for lead, although the measurements of these high ambient air lead concentrations occurred before the most recent version of the federal ambient air lead standard went into effect. Figure 1-4 below illustrates rolling 30-day averages for ambient air lead concentrations monitored by SCAQMD at Trojan Battery. Reported lead emissions data (2010 - 2013) for Trojan Battery indicate an average annual lead emissions value of 15 lbs/year. Since 2011, ambient air lead concentration levels have appreciably decreased, however, the lower levels coincide with the relocation of the SCAQMD monitor in October 2011. The monitor was relocated from its original location at the instruction of the owner of the property, as the location of the SCAQMD monitor was allegedly inhibiting business operations. As such, the lower ambient air lead concentration levels measured by the monitor since its relocation most likely do not reflect maximum ground level concentrations.

Figure 1-4: 2005-2014 SCAQMD Monitoring at Trojan Battery (Rolling 30-day Average)



AMBIENT AIR MONITORING AT PR 1420.2 FACILITIES

Two PR 1420.2 facilities currently have ambient air monitors to demonstrate compliance with the ambient air lead concentration limit of Rule 1420, or have ambient air monitors that are used by the SCAQMD for compliance demonstration with the 2008 NAAQS for lead. These two facilities are Trojan Battery (which was discussed above) and Gerdau, previously Tamco. Monitors are

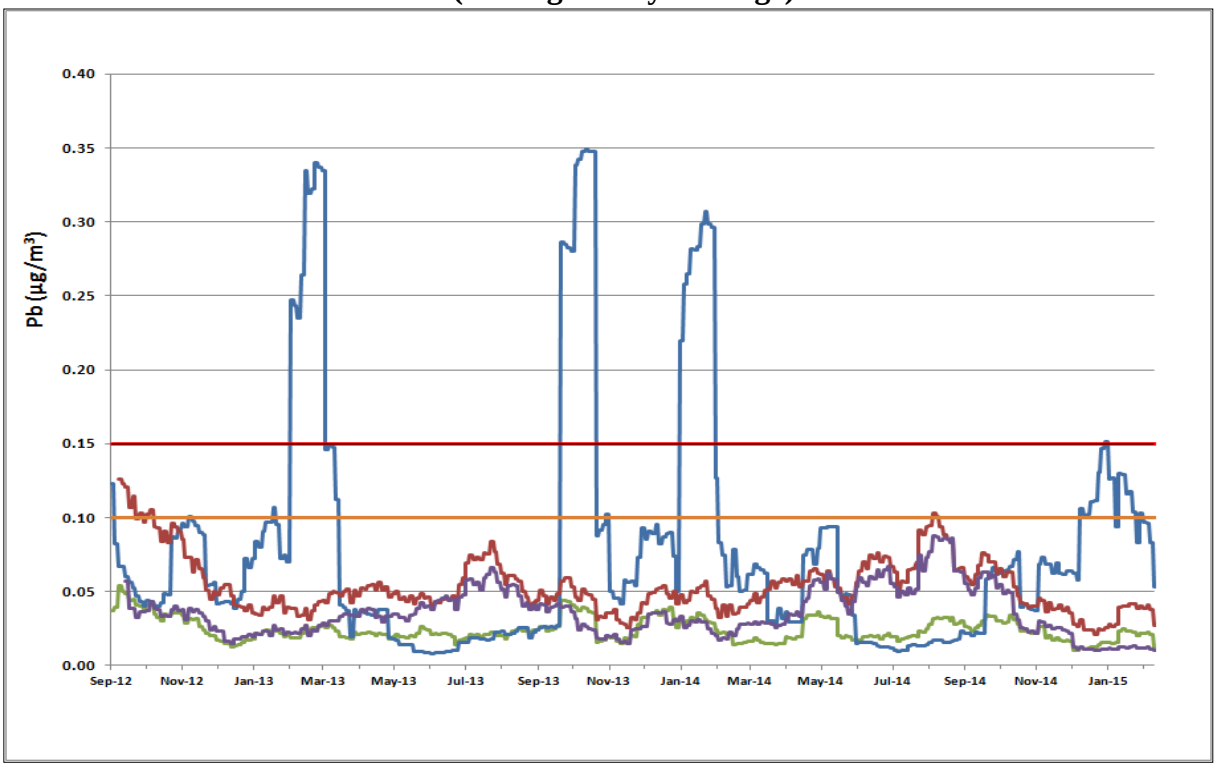
typically sited based on the maximum expected ground-level concentrations of lead at or beyond the property line of the facility. Monitoring data from these two facility types under the source category of metal melting have exhibited high ambient air lead concentration levels over the last decade, and show the high potential for exceedances of the 2008 Lead NAAQS.

Gerdau (Fence Line and Source-Oriented Monitors – Rule 1420 & Lead NAAQS)

Gerdau North America acquired the TAMCO Rancho Cucamonga steel mini mill in October 2010. In 2012, Gerdau retained an environmental consultant to perform an environmental audit and found discrepancies in reported lead emissions. Gerdau self-reported these discrepancies and SCAQMD staff conducted inspections of the facility to address issues. Since 2010, Gerdau has worked with the SCAQMD to ensure compliance with SCAQMD regulatory requirements and has invested nearly $7 million to improve emission reductions. Gerdau also has approved permits with the SCAQMD to install a $37 million state-of-the-art evacuation system that would further improve emission reductions of lead and other metals particulates. Gerdau currently monitors lead and other metals at the facility. Four onsite monitors maintained by Gerdau operate on a 1-in-3 day sampling schedule to monitor the site for compliance with Rule 1420. These monitors are generally located at four locations along the fence line of the facility. Two additional monitors are independently operated and maintained by the SCAQMD. As demonstrated by Figure 1-5 below, the SCAQMD monitors are collocated with the Gerdau SA Recycling monitor (#1) and the Gerdau south baghouse monitor (#2). Recent results of the Gerdau monitoring efforts (Figure 1-6 below) show Gerdau as a source of lead emissions that potentially could contribute to an exceedance of the NAAQS. Fence line monitoring conducted by Gerdau at one of the four monitors measuring ambient air lead pursuant to Rule 1420 shows multiple ambient air lead concentration readings (2012 to present), typically occurring during high wind events, that are well above 0.150 $\mu g/m^3$ averaged over any consecutive 30 days at monitor. Further, recent NAAQS modeling information submitted by Gerdau to SCAQMD staff demonstrates the potential for a NAAQS exceedance near the south baghouse location.

Figure 1-5: Gerdau Fence Line & Source-Oriented Monitors

Figure 1-6: 2012-2015 Gerdau Rule 1420 Fence Line Monitoring Data (Rolling 30-day Average)



AFFECTED SOURCES

Based on lead emissions inventories reported to the SCAQMD AER program for years 2010 through 2012 and information available from the SCAQMD permitting database, there are approximately 13 metal melting facilities expected to be subject to PR 1420.2. Cumulatively these facilities melt more than 50,000 tons of lead annually through a combination of metal melting furnaces. These facilities manufacturer a variety of products and are classified in the North American Industry Classification System (NAICS) codes as 335911 (Storage Battery Manufacturing), 332322 (Sheet Metal Work Manufacturing) 331110 (Iron and Steel Mills and Ferroalloy Manufacturing), 331529 (Other Nonferrous Metal Foundries), 331314 (Secondary Smelting and Alloying of Aluminum), and 332439 (Other Metal Container Manufacturing Products). The facilities range in size from small to large scale operations. The universe of facilities subject to PR 1420.2 includes both foundries and secondary smelters classified in the NAICS under the codes identified in Table 1-3 below. Table 1-4 provides an overview of the estimated annual lead throughput and Table 1-5 provides annual reported lead emissions at metal melting facilities subject to PR 1420.2.

Table 1-3: Types of Facilities Subject to PR 1420.2

NAICS Code	Facility Type	# of Facilities
325998	All Other Miscellaneous Chemical Production and Preparation	1
331110	Iron and Steel Mills and Ferroalloy Manufacturing	1
331314	Secondary Smelting and Alloying of Aluminum	2
331529	Other Nonferrous Metal Foundries	1
332439	Other Metal Container Manufacturing Products	1
332322	Sheet Metal Work Manufacturing	1
335911	Storage Battery Manufacturing	6
Total Number of Facilities		13

Table 1-4: PR1420.2 Overview of Estimated Annual Lead Throughput at Metal Melting Facilities 2010-2012

Value	100 to <500 tons/year	500 to <1000 tons/year	1000 tons/year or more
# of facilities based on annual lead melted (in tons/year)	4	3	6

Table 1-5: PR1420.2 Overview of Reported Lead Emissions at Metal Melting Facilities 2010-2012

Industry that Typically Uses the Equipment (6-Digit NAICS Code)	Reported Maximum Annual Lead Emissions 2010-2012	Data Source
Iron and Steel Mills and Ferroalloy Manufacturing (331110)	1402.48	AER
Storage Battery Manufacturing (335911)	15.70	AER
Storage Battery Manufacturing (335911)	6	TRI
Storage Battery Manufacturing (335911)	4.15	TRI
Storage Battery Manufacturing (335911)	0.149	AER
Storage Battery Manufacturing (335911)	No Data	N/A
Storage Battery Manufacturing (335911)	No Data	N/A
Secondary Smelting and Alloying of Aluminum (331314)	1.936	AER
Secondary Smelting and Alloying of Aluminum (331314)	26.05	AER
Other Nonferrous Metal Foundries (331529)	91.1	TRI
Other Metal Container Manufacturing Products (332439)	4.18	AER
Sheet Metal Work Manufacturing (332322)	198.70	AER
All Other Miscellaneous Chemical Product and Preparation (325998)	27.72	AER

INDUSTRY PROCESS DESCRIPTION, LEAD EMISSION POINTS AND CONTROL STRATEGIES

The following paragraphs provide a general overview of the manufacturing processes and emission sources for the industry source category subject to Proposed Rule 1420.2. Specifically, SCAQMD staff has provided general operation and emissions source information for iron and steel mills, secondary metal processing, foundries, and lead-acid battery storage production.

IRON AND STEEL MILLS

Background

Steel mini-mills are the largest scrap metal recyclers in the United States. The scrap metal originates from sources such as scrapped automobiles, demolished buildings, discarded home appliances, and manufacturing returns. Mini-mills accounted for 57 percent of the national steel production in 2006. The applicable NAICS code for this industry is 331110, Iron and Steel Mills and Ferroalloy Manufacturing. Given that the industry source category for this rulemaking applies to one existing steel mini-mill in the Basin, the following process description reflects the operational characteristics at similar facilities.

Process Description

Steel is manufactured by chemical reduction of iron ore using an integrated steel manufacturing process or a direct reduction process. In conventional integrated steel manufacturing processes, iron from a blast furnace is converted to steel in a basic oxygen furnace (BOF). However, steel can also be produced using an electric arc furnace (EAF) from scrap metal. BOF is typically used for high-tonnage production of carbon steels while EAF's are used to produce carbon steels and low-tonnage specialty steels. In the BOF process, coke making and iron making precede steelmaking; these steps are not necessary with an EAF.

- Electric Arc Furnace (Metal Melting - Steel Production)
  An EAF is a cylindrical, refractory-lined container, and when electrodes are retracted from the furnace, its roof can be rotated aside to permit scrap metal charging (feeding) into the furnace. The charging material is typically scrap metal that is charged by an overhead crane. Steel production using an EAF includes stages such as charging, melting, refining, slagging, and tapping. Each of these stages are described below.

  - Charging
    During the charging stage, scrap metals are fed into the EAF. The charge can also include carbon and lime, a fluxing agent which removes chemical impurities from the metal and renders slag that is more liquid at smelting temperatures. The slag is a liquid mixture of ash, flux, and other impurities. Direct reduced iron (DRI) or other iron-bearing material can supplement the scrap metal. DRI, also known as "sponge iron", is a type of iron created by heating iron ore to burn off carbon and oxygen while the temperature is kept below iron's melting point.

  - Melting
    The furnace roof is rotated back to close the furnace and carbon electrodes are lowered through openings in the furnace roof. Electric current generates heat between the electrodes and through the scrap to melt the scrap. Oxy-fuel burners and oxygen lances may also be used to supply chemical energy. Oxy-fuel burners, which burn natural gas and oxygen, use convection and flame radiation to transfer heat to the scrap metal. Oxygen is directly injected through oxygen lances into the molten steel. Exothermic reaction with the iron and other components provides additional energy to assist in the melting of the scrap metal and excess carbon. Alloys may be added to achieve the desired composition.

- Refining
  Refining of molten steel can take place simultaneously with melting process, especially in EAF operations where oxygen is introduced. During the refining process, substances that are incompatible with iron and steel are separated out by forming a layer of slag on top of the molten metal.

- Slagging
  The slag layer consists primarily of oxides of calcium, iron, sulfur, silicon, phosphorus, aluminum, magnesium, and manganese in complexes of calcium silicate, aluminosilicates, and aluminoferrite. The slag is typically removed by tipping the furnace backwards and pouring the molten slag out through a slag door.

- Tapping
  After completion of the EAF batch process, the tap hole is opened, and the hot steel is poured from the EAF into a ladle for transfer to the next operation.

- Secondary Refining

  - Argon Oxygen Decarburization (AOD)
    AOD is a process that further refines the steel outside the EAF during the production of certain stainless and specialty steels. In the AOD process, steel from the EAF process is transferred into an AOD vessel, and gaseous mixtures containing argon and oxygen or nitrogen are blown into the vessel to reduce the carbon content of the steel. Argon assists the carbon removal by increasing the affinity of carbon for oxygen.

  - Ladle Metallurgy
    After initial smelting and refining of the steel in the EAF, molten steel is further refined in a ladle furnace undergoing chemical and thermal homogenization. The molten steel may receive alloy additions to produce the desired metallurgy.

- Casting and Finishing

  - Continuous Casting
    A ladle with molten steel is lifted to the top of a continuous caster, where it flows into a reservoir (called a tundish) and then into the molds of the continuous casting machine. Steel passes through the molds and then is cooled and solidified into semi-finished products such as blooms, billets, or slabs.

  - Ingot Casting
    Molten steel is poured into an ingot mold, where it cools and begins to solidify. The molds are stripped away, and the ingots are transferred to a soaking pit or reheat furnace where they are heated to a uniform temperature. Ingots are shaped by hot rolling into the semi-finished products such as blooms, billets, or slabs, or by forging.

  - Finishing

The semi-finished products may be further processed by a number of different steps, such as annealing, hot forming, cold rolling, pickling, galvanizing, coating, or painting. Some of these steps require additional heating or reheating. The additional heating or reheating is accomplished using furnaces usually fired with natural gas.

Process Emission Points and Controls

- EAF
  During EAF steelmaking process, metal dusts and gaseous emissions are generated from charging scrap, smelting and refining, removing slag, and tapping steel. The amount and composition of the particulate matter (PM) emitted can vary greatly depending on the scrap composition and types and amount of furnace additives such as fluxes. Iron and iron oxides are the primary components of PM. In addition, zinc, chromium, nickel, lead, cadmium, and other metals may also be present in the PM. Transfer of slag removed from the EAF is a potential source of fugitive lead-dust emissions, especially when cooled slag is loaded by a front-end loader onto a truck to be transported to a different location.

  Emissions from an EAF are generally captured using direct shell evacuation supplemented with a canopy hood located above the EAF. In general, the captured gases and particulate from the EAF are routed to baghouses for PM control. Some mini-mills have a common baghouse through which emissions from the EAF, as well as emissions from the ladle metallurgy process and/or continuous caster, are ducted and subsequently controlled. Fugitive dust emissions from slag loading can be controlled by applying dust suppressants or enclosing the loading area that has openings with overlapping flaps and then venting the dust-laden air to a dust collector.

- Secondary Refining
  The AOD vessel is a potential source of PM and gaseous emissions. A baghouse may be used to control PM emissions. The ladle furnace and ladle heater are emission sources. A roof canopy hood or a side draft hood is used to capture the emissions which are vented to a baghouse (which may be the same baghouse used for EAF emissions).

- Casting and Finishing
  Fugitive particulate emissions may be generated at the caster and emitted through a roof monitor. Control devices are not generally employed for these processes. Other potential sources of emissions include reheat furnace, annealing furnaces, and other furnaces used in the finishing processes.

SECONDARY METAL PROCESSING

Source Description

Secondary metal processing, also known as metal scrap recycling, is a large industry that processes in the U.S. alone, 56 million tons of scrap iron and steel (including 10 million tons of scrap automobiles), 1.5 million tons of scrap copper, 2.5 million tons of scrap aluminum, 1.3 million tons of scrap lead, 300,000 tons of scrap zinc, 800,000 tons of scrap stainless steel, and smaller quantities of other metals, on a yearly basis. Secondary metal processing is the processing of metal-containing materials to recover and reuse the metal.

The NAICS codes for this industry are 331314 Secondary Smelting and Alloying of Aluminum; 331410 Nonferrous Metal (except Aluminum) Smelting; and 331492 Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum).

Process Description

The specifics of recovery processes vary depending on the type of metal being processed. Processes may even vary among facilities processing the same type of metal. The processes used by different industries may be grouped by one of the following general processes.

- Raw Material Handling
  Material handling operations include receiving, unloading, storing, and conveying the metal-containing materials and auxiliary materials required for metal processing (i.e., scrap metals, fluxes, fuels, alloys, and casting materials).

- Scrap Pretreatment
  Scrap pretreatment involves the preliminary separation of the metal of interest from other metals contained in the scrap and contaminants such as dirt and plastics. The most commonly used operations include mechanical separation, solvent cleaning, centrifugation, pyrometallurgical and hydrometallurgical cleaning, and heavy-media separation. Mechanical separation includes sorting, crushing, pulverizing, shredding, and other mechanical means to break scrap into small pieces.

- Metal Melting/Smelting
  Melting is performed to separate the metals of interest from their metallic compounds. Melting also allows the creation of an alloy and castings to be made from its molten metal. Smelting in nonferrous metal processing takes place in furnaces or heated crucibles. The furnaces may be heated with fuels or through the use of electricity.

  Pretreated scrap, fuels, and flux materials are charged to the furnace where melting takes place. The mixture of the flux materials depends on the type of metal being processed. In secondary lead processing, for example, flux materials may consist of rerun slag, scrap iron, coke, recycled dross, flue dust, and limestone. The flux may chemically react with the scrap in the presence of heat, breaking metallic-oxide bonds to produce pure metal. Also, the flux may oxidize impurities in the scrap and further purify the metal.

- Metal Refining
  Refining may take place in the melting furnace, or it may be performed in holding furnaces or other heated vessels separate from the melting furnace to further purify the metal, producing the desired properties. These furnaces are heated with fuels or with electricity. Flux materials are added to the molten metal in the furnace to remove impurities. Alloy materials are added to produce desired properties of the metal.

- Metal Forming and Finishing
  The metal may be formed to make bars and ingots, or it may be formed to a final product. Bars and ingots, such as those produced in secondary lead and aluminum industries, may be sent to

another facility to make a final product. In iron and steel foundries, the metal is cast into a final product at the melting facility.

Forming the metal into a final product requires the use of cores and molds. Cores are shapes used to make internal voids in castings. Molds are forms used to shape the exterior of castings. The formed metal is removed from the mold. If the formed metal is a final product, it may be necessary to grind or sand off rough edges. The metal may be shot-blasted to remove mold sand or scale.

Emissions and Control

Particulate or hazardous air pollution emissions are likely to result from hot processes that produce fumes (such as torching, welding, and melting in a furnace) or processes that produce dust (such as breaking, shredding, and cutting). An exhaust system, either stationary or portable, must be deployed to capture airborne hazardous metal at the source of emissions such as melting furnaces, shredders, and cutters. Cyclones, electrostatic precipitators, and fabric filters are suitable for filterable dust. Wet scrubbers are also a common control method for dust and acidic gases.

FOUNDRIES

Source Description

A foundry is a facility that produces metal castings. The metal casting industry sector includes establishments that pour molten ferrous metals (iron and steel) or non-ferrous metals under high pressure into molds to manufacture castings. Ferrous metal castings include those castings made with gray iron, white iron, ductile iron, malleable iron, and steel. Non-ferrous metal castings are predominantly aluminum, but might also be bronze, brass, zinc, magnesium, and titanium. Cast metal components are used in the manufactured goods that include engine blocks, transmission housings, and suspension parts of cars and trucks; undercarriages of farms and construction equipment; and pipes and valves for plumbing fixtures and boilers. The applicable NAICS codes for this industry sector are 331511 Iron Foundries; 331512 Steel Investment Foundries; 331513 Steel Foundries (except Investment); 331523 Nonferrous Metal Die-Casting Foundries; 332524 Aluminum Foundries (except Die-Casting); and 331529 Other Nonferrous Metal Foundries (except Die-Casting).

Process Description

Foundry operations consist primarily of pattern/mold making, melting, pouring, cooling and finishing.

- Pattern and Mold Making

  Pattern making is the first stage of developing a new casting. The pattern becomes permanent so it can be used to form a number of permanent molds. Cores are produced in conjunction with the pattern to form the interior surfaces of the casting. Cores are formed by one of the binding systems.

  The mold is formed in a mold box (flask), which is typically constructed in two halves to assist in removing the pattern. The bottom half of the mold (the drag) is formed on a molding board.

Cores require greater strength to hold their form during pouring. Once the core is inserted, the top half of the mold (the cope) is placed on top.

- Melting and Pouring
  Many foundries use a high proportion of scrap to make up a charge. Therefore, foundries play an important role in the metal recycling industry. The charge is weighed and introduced into the furnace. Alloys and fluxes are added to the charge to produce the desired melt. The furnaces commonly used in the industry are described below.

  Molten metal is transferred from the furnace to a ladle and held until it reaches the desired pouring temperature. The molten metal is poured into the mold and allowed to solidify. Several types of furnaces may be used:

  - Cupola Furnace
    A typical cupola furnace consists of a water-cooled vertical cylinder which is lined with refractory material. Cupolas are charged in alternating layers of scrap metal, alloying materials, limestone, and coke through an opening in the cylinder. Air is introduced into the cupola through tuyeres located at the base. The heat produced by the burning coke melts the iron, which flows down and is tapped from the bottom of the cupola. Flux combines with non-metallic impurities in the charge and forms slag, which is drawn off through holes located above the level of the metal tap hole.

  - Induction Furnace
    An induction furnace is an electric melting furnace that uses heat generated by electric induction to melt metal. These furnaces have excellent metallurgical control and are relatively pollution free in comparison to cupola furnaces. A high voltage in the primary coil induces a low-voltage, high current across the metal charge which acts as a secondary coil. Because of electrical resistance in the metal, this electrical energy is converted to heat which melts the charge. Once the metal is in its molten state, the magnetic field produces a stirring motion. In a coreless induction furnace, the refractory-lined crucible is completely surrounded by a water-cooled copper coil, which prevents the primary induction coil from overheating. In a channel induction furnace, the induction coil surrounds the inductor.

  - Electric Arc Furnace
    An EAF is another type of electric furnace used in larger foundries and mini-mills steelmaking operations. The scrap metal charge is placed on the hearth and melted by the heat from an electric arc formed between the electrodes. In a direct-arc furnace, the electric arc comes into contact with the metal; in an indirect-arc furnace, the electric arc does not touch the metal. EAFs are more tolerant of dirty scrap than induction furnaces and can be used to refine metals, allowing steel to be refined from iron charge.

  - Reverberatory Furnace
    Reverberatory furnaces are designed and operated to produce a soft, nearly pure lead product. Reverberatory furnaces emit high levels of lead fume during charging and tapping lead and slag.

- Rotating Furnace
  A rotating furnace consists of a refractory-lined cylinder that rotates slowly around a horizontal axis. The charge is heated directly from an open flame, typically fed by gas or oil. Exhaust gases are extracted from the opposite end of the chamber. Rotating the furnace helps to mix the charge and utilizes heat from the whole refractory surface.

- Crucible Furnace
  Crucible furnaces are mostly used by smaller foundries or for specialty alloy lines. The crucible or refractory container is heated in a furnace, typically fired with natural gas or liquid propane.

- Cooling and Shakeout
  Once the metal has been poured, the mold is transported to a cooling area. The casting needs to cool before it can be removed from the mold. Castings may be removed manually or using vibratory tables that shake the refractory material away from the casting. Quenching baths are also used in some foundries to achieve rapid cooling of castings. The quench bath may contain chemical additives to prevent oxidation.

- Sand Reclamation
  A significant proportion of the waste sand is reclaimed mechanically or thermally for reuse. Cores, metal lumps, and binders are removed by vibrating screens and extraction, and collected in a baghouse. Thermal reclamation process heats the sand to the point where organic materials, including the binders, are driven off. The sand is returned to an "as new" state, allowing it to be used in core making.

- Finishing
  Finishing process such as fettling involves the removal of the casting from the gating systems. This is accomplished by cutting, grinding, and chiseling.

Emissions and Control

Air emissions result from various operations in foundries, including metal melting, mold making, handling foundry sand, and die-casting. The majority of metal emissions come from the metal melting operations, while most organic emissions are from handling the binder. Once the binder is combined with the sand, there may be additional PM emissions from pouring the molten metal into the casting and from breaking apart the cast. Handling foundry sand results primarily in PM emissions. Fugitive particulate can be emitted from operations of unloading, storage, transfer, and preparation.

The casting or mold pouring and cooling operations in iron and steel foundries are potentially a source of lead emissions. In addition, mold preparation and casting shakeout (removal from the mold) activities are also lead emission sources.

Baghouses and wet scrubbers are common technologies used to control lead emissions from foundry metal melting operations. Fugitive emissions from such sources are generally controlled

with local hooding or building ventilation systems that are ducted to a control device (predominantly baghouses).

STORAGE BATTERY MANUFACTURING

Source Description

Today's major use of lead is in lead-acid storage batteries. The electrical systems of vehicles, ships, and aircraft depend on such batteries for start-up, lighting, and ignition (SLI) and, in some cases, batteries provide the actual motive power. The NAICS code for this industry sector is 335911 Storage Battery Manufacturing.

Process Description

Operations consist primarily of grid casting, paste mixing, pasting, burning, battery assembly, formation and lead recovery.

- Grid Casting
  Lead alloy ingots are melted in a gas-fired lead furnace at approximately 700 degrees F. The furnace is often equipped with a hood to vent the fumes to an emission control device. The molten lead flows into molds that form the battery grids. They are then ejected, trimmed, and stacked.

- Lead Oxide Production and Paste Mixing
  The paste mixing is conducted in a batch-type process to make paste for application to the grids. A mixture of lead oxide powder, water, sulfuric acid, and an organic expander (generally mixture of barium sulfate, carbon black, and organic fibers) is added to the mixer, depending on whether the paste batch is for positive or negative plates. The mixture is blended to form a stiff paste. A duct system vents the exhaust gases from the mixer and loading station to an emission control device.

- Grid Pasting
  Pasting machines force the lead sulfate paste into the interstices of the grid structure (the grids are called plates after the paste has been applied). The freshly pasted plates are transported through a temperature-controlled heated tunnel, where the surface water is removed. No emission control is generally provided or needed for grid pasting and plate drying operations. The floor area around pasting operations must be kept clean of paste, however, since this is a potential source of fugitive dust. After the plates are cured for up to 72 hours, they are sent to the assembly operations where they are stacked in an alternative positive and negative block formation.

- Lead Burning
  Leads are welded to the tabs of each positive plate and each negative plate, fastening the assembly (element) together. An alternative to this operation is the "cast-on-strap" process, where molten lead is poured around and between the plate tabs to form the connection. Then a positive tab and a negative tab are independently welded to the element. The completed elements can go to either the wet or dry assembly lines.

- Battery Assembly
  In the wet battery line, elements are placed in battery cases made of durable plastic or hard rubber. Covers are sealed to the cases, and the batteries are filled with diluted sulfuric acid and made ready for formation. For dry batteries, elements are formed prior to be placed in a sealed case.

- Formation
  The inactive lead oxide-sulfate paste is chemically converted into an active electrode. Lead oxide in the positive plates is oxidized to lead peroxide; in the negative plates, it is reduced from to metallic lead. This is accompanied by placing the unformed plates in a diluted sulfuric acid solution and connecting the positive plates to the positive pole of a direct current (D.C.) source and the negative plates to the negative pole of a D.C. source.

- Lead Recovery
  Defective parts are either reclaimed at the battery plant or sent to a secondary lead smelter for recycling. Pot-type furnaces are generally used for reclaiming scrap lead at the battery manufacturing plants. Because of the relatively low operating temperatures, emission concentrations are low. Emissions generally are visible only when oily scrap or floor sweepings are charged.

Emissions and Control

Lead and other PM are generated in several operations within storage battery production. Fabric filtration is generally used as part of the process control (i.e., product recovery equipment) and to collect particulate emissions from lead oxide mills. Fabric filters have become an accepted method for controlling emissions from grid casting and lead reclamation. Specifically, cartridge collectors and high efficiency particulate air (HEPA) filters can be used in grid casting, paste mixing, lead oxide manufacturing, the three-process operation, or lead reclamation. Cyclone mechanical collectors often precede fabric filters.

CHAPTER 2: SUMMARY OF PROPOSED RULE 1420.2

OVERALL APPROACH

PROPOSED RULE 1420.2

OVERALL APPROACH

Proposed Rule 1420.2 establishes core requirements for all metal melting facilities, and if the ambient air concentration limits are exceeded, then affected facilities are required to submit a Compliance Plan with additional lead reduction measures that can be implemented to ensure compliance with the ambient air lead concentration limits. The core requirements include installation of ambient air lead monitors, compliance with ambient air lead concentration limits, point source control requirements, housekeeping and maintenance requirements, and source testing. Representatives from the Rule 1420.2 Working Group suggested that additional requirements beyond these "core requirements" be identified in a Compliance Plan and that submittal and implementation of the Compliance Plan would be required, only if needed. The objective of the Compliance Plan is to provide lead reduction measures that can be implemented, if needed, to ensure the facility can achieve the final ambient air lead concentration limit.

PROPOSED RULE 1420.2

PR 1420.2 will address lead emissions generated from metal melting facilities. The intent of the rule is to reduce lead emissions and ambient air concentrations of lead, reduce public health impacts by reducing the exposure to lead, and to help ensure attainment and maintenance of the NAAQS for lead. As a result, the rule proposes requirements for point source lead emission controls and standards and ambient air lead concentration limits. Fugitive lead emissions are addressed through housekeeping and maintenance activity requirements, and total enclosures of areas where metal melting operations and associated operations are conducted. Additionally, periodic source testing, capture efficiency testing, ambient air monitoring, and reporting and recordkeeping requirements are also being proposed to ensure continuous compliance. Metal melting facilities that exceed the ambient air lead concentration limits of PR 1420.2 will be subject to additional requirements including total enclosures with negative air, increased ambient air lead monitoring and sampling, and submittal and potential implementation of a Compliance Plan that lists additional control measures beyond those specified in the rule in order to comply with the applicable ambient air lead concentration limits of PR 1420.2.

Applicability

PR 1420.2 applies to metal melting facilities in the SCAQMD that melt 100 tons or more of lead annually. Based on SCAQMD staff analysis of compliance and permitting data, there are currently 13 facilities in the District that meet the applicability requirements of the proposed rule. Excluding large lead-acid battery recyclers, these facilities represent the largest stationary source category of reported lead emissions and ambient air concentrations in the Basin and include facilities such as scrap recyclers, iron and steel mini-mills, aerospace, and lead-acid battery manufacturers. Additionally, as discussed in Chapter 1, data from SCAQMD monitors at two metal melting facilities have shown the potential for this source category to exceed the NAAQS lead limit of 0.15 $\mu g/m^3$ averaged over a rolling 3-month period. A minimum process limit of 100 tons of lead melted a year was set as the threshold for rule applicability due to the fact that a PR 1420.2 facility melting a little over this amount resulted in high ambient air lead concentrations at the fence line (higher than 0.300 $\mu g/m^3$ averaged over 30 days). PR 1420.2 is more stringent than Rule 1420, therefore facilities that are subject to and comply with PR 1420.2 will be exempt from Rule 1420 requirements.

Definitions

PR 1420.2 includes definitions of the following terms used in the proposed rule. Please refer to subdivision (c) of PR 1420.2 for the definitions:

- Ambient Air
- Casting
- Construction or Maintenance Activity
- Duct Section
- Dust Suppressant
- Emission Collection System
- Emission Control Device
- Fugitive Lead-Dust
- Furnace
- Furnace, Refining, or Casting Area
- Lead
- Lead Point Source
- Leeward Wall
- Measurable Precipitation
- Metal
- Metal Melting Facility
- Partial Enclosure
- Process
- Sensitive Receptor
- Slag
- Smelting
- Smelting Furnace
- Total Enclosure
- Valid 24-Hour Sample
- Windward Wall

Requirements

Subdivisions (d) through (l) of PR 1420.2 establish key "core" requirements including ambient air lead concentration limits, ambient air monitoring and sampling, point source emissions controls, total enclosures, housekeeping measures, maintenance activity requirements, source testing, recordkeeping, and reporting. Requirements for submitting and implementing a Compliance Plan are specified in subdivision (m), visible emissions are specified in subdivision (n), and subdivision (o) includes exemptions.

Subdivision (d) – Ambient Air Lead Concentration Limit

Upon adoption of PR 1420.2, metal melting facilities that are already conducting Executive Officer-approved ambient air lead monitoring and sampling prior to adoption of the PR 1420.2 will be required to meet an ambient air lead concentration limit of 0.150 $\mu g/m^3$ averaged over any 30 consecutive days. For metal melting facilities that install a rule-required ambient air lead monitor after adoption of Rule 1420.2, the ambient air lead concentration limit of 0.150 $\mu g/m^3$ averaged over any 30 consecutive days must be met no later than 90 days from the date the ambient air monitoring and sampling plan is approved. The 90 days includes a 30-day time period after

the ambient monitors are required to be installed (60 days after approval of the plan) before the 0.150 µg/m^3 lead concentration limit is effective.

On and after January 1, 2018, metal melting facilities subject to PR 1420.2 will not be allowed to discharge into the atmosphere emissions which contribute to ambient air concentrations of lead that exceed 0.100 µg/m^3 averaged over any 30 consecutive days. Measurements recorded at any rule-required ambient air lead monitor, including any District-installed monitor, are subject to compliance with the limit. This requirement is designed as a preventative measure to ensure that the NAAQS will not be exceeded, and additionally to provide further protection to public health.

The objective of the proposed requirement is to be more protective of public health by limiting the lead concentration in the ambient air. By limiting the ambient air lead concentration to the 0.100 µg/m^3 by 2018, it will further reduce the accumulation of lead dust and reduce lead exposure from metal melting facilities to the surrounding community. Lowering the ambient air lead concentration is not inconsistent with studies that U.S. EPA reviewed indicating that lower ambient air lead concentrations would result in less impacts to children. According to U.S. EPA, the assessment of the currently available studies continues to recognize a non-linear relationship between blood lead and effects on cognitive function, with a greater incremental effect (greater slope) at lower relative to higher blood lead levels.[1] Chronic health effects include increased risk of cancer, nervous and reproductive system disorders, neurological and respiratory damage, cognitive and behavioral changes, and hypertension. In addition, young children accumulate lead more readily than do adults and are more vulnerable to certain biological effects of lead including learning disabilities, behavioral problems, and deficits in IQ. As discussed on Chapter 1, Section "Justification for Lowering Ambient Air to 0.100 µg/m^3," even lead levels meeting the current NAAQS may result in loss of IQ for younger children.

Subdivision (e) – Ambient Air Monitoring and Sampling Requirements

PR 1420.2 facilities will be required to collect and analyze ambient air lead samples to determine compliance with the ambient air quality lead concentration limits of the rule. This subdivision provides the requirements for submittal of an ambient air monitoring and sampling plan, the number of monitors, placement of monitors, and installation of monitors.

No later than March 1, 2016, facilities will be required to prepare and submit a Lead Ambient Air Monitoring and Sampling Plan for review and approval by the Executive Officer. Information required in the plan includes:

- Source test results of all lead point sources;
- Map of facility identifying the location of all lead emission sources, air pollution control devices, stacks, enclosures, openings of enclosures, storage of lead-containing materials, roadways where vehicles carrying lead-containing materials travel within the facility, vehicle egress and ingress locations, the property line of the facility, the fence line of the facility if it differs from the property line of the facility, and any areas within the property line of the facility that are publicly accessible; and
- Number and locations for sampling sites that meet the requirements of paragraph (e)(2).

[1] U.S. EPA's "Policy Assessment for the Review of the Lead National Ambient Air Quality Standards," Environmental Protection Agency, May 2014

No later than 60 days after approval of a Lead Ambient Air Monitoring and Sampling Plan, facilities will be required to install and conduct ambient air lead monitoring and sampling. Samples must be collected from a minimum of three sites with locations of the sampling sites based on maximum expected ground level lead concentrations, at or beyond the property line, as determined by Executive Officer-approved air dispersion modeling calculations and emission estimates from all lead point sources and fugitive lead-dust sources, and other factors including, but not limited to, population exposure and seasonal meteorology.

The Executive Officer may require a facility to relocate existing monitors or install additional monitors to those required as specified above in order to measure ambient air lead concentrations at locations that may contribute to the exceedance of an ambient air lead concentration limit specified in subdivision (d). The basis for relocating existing monitors or requiring installation of additional monitors shall be based on information showing:

- A new or existing lead source that was not previously identified or fully disclosed;
- An increase in lead emissions from an existing source where existing monitors are not capturing the potential ambient air lead concentration; or
- None of the existing monitors are capturing the maximum expected ground level lead concentrations.

Paragraph (e)(5) requires facilities to collect samples at a more stringent frequency than the 1-in-6 days if any of the following exceedances occur:

Effective Date	Ambient Air Concentration of Lead, micrograms per cubic meter ($\mu g/m^3$), averaged over any 30 consecutive days	Sampling Frequency at the Affected Monitor
Before January 1, 2018*	0.150 - 0.300	1-in-3 days
	> 0.300	Daily
Beginning January 1, 2018	0.100 – 0.150	1-in-3 days
	> 0.150	Daily

*Effective date for facilities with approved monitors prior to adoption of the PR 1420.2. Effective date for all other facilities is 90 days from the date of approval of a Lead Ambient Air Monitoring and Sampling Plan.

For facilities that are conducting ambient air monitoring and sampling pursuant to paragraph (e)(2), the effective date of the table above is 90 days after approval of a Lead Ambient Air Monitoring and Sampling Plan, and date of rule adoption for facilities conducting ambient air monitoring and sampling pursuant to paragraph (e)(3). Monitoring under the more stringent

schedule shall remain in effect until monitoring results at each affected monitoring station are at or below the ambient air lead concentration limit specified in subdivision (d) for a period of 30 consecutive days.

A facility must conduct daily sampling pursuant to subparagraph (e)(5)(C) if:

- The Executive Officer has approved a Health Risk Assessment for the facility after January 1, 2015 that exceeds the action risk level specified in District Rule 1402; and
- After 12 months prior to rule adoption, has exceeded an ambient air lead concentration of 0.120 $\mu g/m^3$ averaged over any 30 consecutive days.

Daily ambient air monitoring and sampling under subparagraph (e)(5)(C) is to begin no later than three calendar days after approval of the Health Risk Assessment, no later than three calendar days from the time the facility knew or should have known of the exceedance, or by date of PR 1420.2 adoption, whichever is latest.

PR 1420.2 requires that 24-hour lead samples be collected and requires that samples be collected midnight-to midnight at all sites, but does allow for a different sampling schedule based on approval of the Executive Officer. Approval of an alternative schedule shall be granted if it demonstrated to the Executive Officer that the alternative schedule is adequate to routinely collect valid 24-hour samples, as defined in the rule, and is conducted using the sampling methods referenced in paragraph (e)(8). Facilities will also be required to continuously monitor wind speed and direction as described in the approved plan for the ambient air quality monitoring system at all times to supplement data analysis of the samples collected. Approval shall be based on guidelines for wind and speed direction monitoring as provided in the "*SCAQMD Rule 403 Implementation Handbook – Chapter 6: On-Site Wind Monitoring Equipment*," or other relevant EPA reference documents such as the "*Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV, Meteorological Measurements*."

Personnel approved by the Executive Officer, or facility personnel trained and certified to conduct ambient air monitoring demonstrated through successful completion of a course offered or approved by the Executive Officer will be allowed to conduct ambient air quality monitoring. Monitoring and sampling equipment shall be operated and maintained in accordance with U.S. EPA-referenced methods.

Cleaning activities, such as wet washing and misting, that could result in damage or biases to samples collected, will not be allowed within 10 meters of any sampling site required by the rule. Additionally, all ambient air quality monitoring systems collecting daily samples pursuant to paragraph (e)(5)(C) will be required to be equipped with a backup, uninterruptible power supply sufficient to power monitors for use during a power outage in order to ensure that a valid 24-hour sample can be collected. Installation and operation of the backup power will be required no later than 30 days after daily sampling under subparagraph (e)(5)(C) is required.

Any existing ambient air monitoring network currently in use for Rule 1420 shall be used for compliance with PR 1420.2 so long as all rule requirements for sampling and monitoring have been met.

Subdivision (f) – Lead Point Source Emission Controls

Lead point sources are defined by the proposed rule as any process, equipment, or total enclosure used at a melting facility whose lead emissions pass through a stack or vent designed to direct or control its release into the ambient air. All lead emissions from lead point sources are required to be vented to a lead control device. Proposed requirements for lead point source emission controls will be effective beginning March 1, 2016 in order to give facilities ample time to apply for permits and construct all necessary lead control devices.

PR 1420.2 requires that lead point source emission controls meet a minimum lead reduction efficiency of 99 percent or meet an outlet mass lead emissions rate of less than 0.00030 pounds per hour. The 99 percent lead reduction efficiency is more stringent than the 98 percent lead reduction efficiency requirement of Rule 1420. Upon review of District-approved source tests of lead point sources, SCAQMD staff determined that the more stringent 99 percent lead reduction efficiency for this source category is achievable with controls available today.

Subsequent to the initial source test, in lieu of having to conduct an inlet and outlet source test to demonstrate control efficiency, PR 1420.2 allows the owner or operator of a metal melting facility to alternatively demonstrate that the lead point source outlet emission rate is no greater than a total mass lead outlet emission rate requisite to achieve 99% control efficiency. The requisite total mass lead outlet emission rate shall be calculated using the most recent District-approved source test conducted at the inlet and outlet of the lead emission control device showing compliance with a 99% control efficiency for lead, or meet an outlet mass lead emission rate of less than 0.00030 pounds per hour.

The SCAQMD staff recognizes that some lead point sources with very low uncontrolled emissions may have difficulty demonstrating the 99 percent lead reduction efficiency requirement due to low inlet loading. Therefore, in lieu of complying with the 99 percent lead reduction efficiency, PR 1420.2 allows the owner or operator to demonstrate an outlet mass lead emission rate of less than 0.00030 pounds per hour. This low lead emission rate represents a level of lead emissions that is a full magnitude lower than the most stringent lead emission rate established or proposed by any SCAQMD rule for the control of lead.

All filters and filter bags used in any lead control device are required to be rated by the manufacturer to achieve a minimum of 99.97% capture efficiency for 0.3 micron particles, or made of polytetrafluoroethylene membrane material. Any other material that is equally or more effective for the control of lead emissions may be used so long as it is approved by the Executive Officer.

Paragraph (f)(5) requires a periodic smoke test to be conducted at least once every 3 months using procedures set forth in Appendix 2 of PR 1420.2. The purpose of this test is to ensure the efficacy of the emission collection system for any lead point source. Emission control efficiency at the exhaust of an add-on air pollution control device is related to capture efficiency at the inlet of the ventilation system, and for this reason, it is imperative that 100% capture efficiency is maintained. The periodic smoke test requirement of PR 1420.2 will not be required if performing such test presents an unreasonable risk to safety to the person conducting the test. An example of such unreasonable risk to safety includes having to conduct a smoke test at collection sites that would

be extremely dangerous for somebody to work in, or would be in violation with OSHA requirements for worker safety.

Subdivision (g) – Total Enclosures

No later than March 1, 2016, the specified areas below will be required to be located within a total enclosure. The areas may be enclosed individually or in groups. The intent of this requirement is to provide maximum containment and minimize fugitive lead-dust emissions generated in areas where melting, processing, handling and storage of lead-containing materials occur. Areas to be located within a total enclosure will include:

- Furnace, refining, or casting areas; and
- Lead oxide production and pasting areas.

Cross-draft conditions of a total enclosure shall be minimized by closing any openings that result in a decrease in the collection of lead emissions for an emission collection system, including, but not limited to, vents, windows, passages, doorways, bay doors, and roll-ups during metal melting operations. Alternative methods to closing openings (plastic strip curtains, vestibules, etc.) may be used if the owner or operator can demonstrate to the Executive Officer equivalent or more effective ways to minimize cross-draft conditions.

Facilities will be required to provide negative air for a total enclosure if:

- The facility has a Health Risk Assessment approved by the District after January 1, 2015 that exceeds the action risk level specified in District Rule 1402; and
- After [12 months prior to the adoption of PR 1420.2], any facility that exceeds an ambient air lead concentration of 0.120 $\mu g/m^3$ averaged over any 30 consecutive days measured by any monitor installed pursuant to subdivision (e), by any District-installed monitor collocated with a monitor installed pursuant to paragraph (e), or by any District-installed monitor located beyond the property line of a metal melting facility that measures lead concentrations resulting from the facility.

Total enclosures with negative air subject to paragraph (g)(3) will be required to be installed, maintained, and operated no later than 2 years after approval of the Health Risk Assessment referenced above, no later than 2 years after the exceedance of 0.120 $\mu g/m^3$ that occurred after approval of a Health Risk Assessment referenced above, or by January 1, 2018, whichever is latest. The Executive Officer may approve a request for an extension of the compliance deadline date in subparagraph (g)(3)(B) if the facility can demonstrate that it timely filed all complete permit applications and is unable to meet the deadline due to reasons beyond the facility's control. The request shall be submitted to the Executive Officer no later than 30 days before the compliance deadline date.

Subdivision (h) – Housekeeping Requirements

The following housekeeping requirements are proposed to minimize fugitive lead-dust emissions. All requirements will be effective within 30 days of rule adoption with the exception of the requirements to conduct semi-annual roof top cleanings and to pave with concrete or asphalt, or otherwise stabilize all facility grounds with dust suppressant, which will be effective 180 days after rule adoption.

- Clean by wet wash or vacuum particles in a manner that does not generate fugitive lead-dust, the areas listed below (1-4) at the specified frequencies, unless located within a total enclosure vented to a lead emission control device. Days of measurable precipitation in

the following areas occurring within the timeframe of a required cleaning frequency may be counted as a cleaning.

1. Quarterly cleanings of roof tops, no more than 3 calendar months apart, on structures $\leq$ 45 feet in height that house areas that are associated with the processing, handling, or storage of lead-containing materials capable of generating any amount of fugitive lead-dust, excluding areas associated with the storage of raw unprocessed lead-containing materials or finished lead-containing products;
2. Semi-annual cleanings, no more than 6 calendar months apart, of roof tops on structures > 45 feet in height that house areas associated with the processing, handling, or storage of lead-containing materials capable of generating any amount of fugitive lead-dust, excluding areas associated with the storage of raw unprocessed lead-containing materials or finished lead-containing products;
3. Weekly cleanings by wet wash, vacuum, wet-mop, or stabilization with a dust suppressant of all areas where lead-containing wastes generated from housekeeping activities are stored, disposed of, recovered or recycled, and surfaces that accumulate lead-containing dust subject to foot traffic; and
4. Initiate immediate cleaning, no later than one hour, after any construction or maintenance activity or event including, but not limited to, accidents, process upsets, or equipment malfunction, that causes deposition of fugitive lead-dust onto areas specified in the rule. If the facility can demonstrate that delays were due to unreasonable risks to safety posed by earlier cleaning, or inability to reasonably obtain equipment required to implement this requirement, immediate cleanings of rooftops shall be completed within 72 hours.

- Pave with concrete or asphalt all facility grounds, or use of dust suppressants at a frequency specified by the manufacturer, for the purpose of providing a surface that accommodates ease of cleaning or minimizes the generation of fugitive lead-dust.
    - An alternative frequency to apply dust suppressants may be used based on recommendations by the vendor or installer if the facility can provide information to the Executive Officer demonstrating that the alternative frequency is more appropriate for the specific application at its facility, including factors such as the type of use of the dust suppressant, physical properties of the lead containing material, exposure, and adjacent uses.
    - Facility grounds used for plant life that are less than a total surface area of 500 square feet, and landscaped areas within and beyond facility parking lots or perimeter landscaped areas shall not be subject to paragraph (h)(3) (e.g., paving with concrete or asphalt).
    - Facility grounds that cannot be paved with concrete or asphalt, or otherwise stabilized with dust suppressants in order to comply with city permits, ordinances, or requirements of the State Water Control Board shall not be subject to paragraph (h)(3).
    - Facility grounds requiring removal of existing pavement, concrete, asphalt or other forms of stabilization, necessary for construction and maintenance purposes shall not be subject to paragraph (h)(3) while undergoing work, and shall be paved with concrete or asphalt, or otherwise stabilized with dust suppressants immediately after all required work is completed. All work shall be conducted in accordance with subdivision (i).

  - Undeveloped facility grounds where no activities or operations are conducted are not subject to (h)(3).
- Removal of weather caps on any stack that is a lead emissions source.
- Storage of all materials capable of generating any amount of fugitive lead-dust in sealed, leak-proof containers, or stabilize such materials using dust suppressants approved in writing by the Executive Officer, unless located within a total enclosure. Examples of materials include slag, spent filters used in lead control devices, and lead-containing waste generated from housekeeping requirements.
- Transport all materials capable of generating any amount of fugitive lead-dust emissions within closed conveyor systems or in sealed, leak-proof containers, or stabilize such materials using dust suppressants approved in writing by the Executive Officer, unless conducted within a total enclosure. This requirement is not applicable to the transport of high temperature materials exceeding 500 degrees Fahrenheit (e.g., transport of hot slag prior to solidifying) where implementation of the specified control requirements is infeasible.
- Facility grounds cleaning using onsite mobile vacuum sweepers or vacuums equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles. Facilities will be required to vacuum sweep all facility areas subject to vehicle and foot traffic with a vacuum or an onsite mobile vacuum sweeper that complies with District Rule 1186. Vacuum sweeping will be required once per operating shift with each event not less than four hours apart, unless located within a total enclosure vented to a lead control device.
- The cleaning requirements for paragraphs (h)(1) and (h)(7) (periodic cleanings, mobile sweepings) will not be required on any day where the onsite measured rain amount is greater than 0.01 inches in any 24-hour calendar day. Facilities may use locally recorded and reported measured rain amounts.
- Except when inside a total enclosure, all lead-containing trash and debris shall be placed in covered containers that remain covered at all times except when trash or debris is actively transferred. Trash and debris shall be free of liquid or dust leaks.
- Post signs at all entrances and truck loading and unloading areas indicating a facility speed limit of 5 miles per hour or less on any roadway located within 75 feet of the perimeter of a total enclosure and 15 miles per hour or less on any roadway located at more than 75 feet from the perimeter of a total enclosure.

Subdivision (i) – Construction or Maintenance Activity Requirements

The construction or maintenance activity requirements of PR 1420.2 are effective upon rule adoption. For purposes of the proposed rule, maintenance activity is defined as any of the following activities conducted outside of a total enclosure with negative air that generates fugitive lead-dust:

- Building construction, demolition, or the altering of a building or permanent structure, or the removal of one or more of its components;
- Replacement or repair of refractory, filter bags, or any internal or external part of equipment used to process, handle, or control lead-containing materials;
- Replacement of any duct section used to convey lead-containing exhaust;

- Metal cutting or welding that penetrates the metal structure of any equipment used to process lead-containing material, and its associated components, such that lead dust within the internal structure or its components can become fugitive lead-dust;
- Resurfacing, repair, or removal of ground, pavement, concrete, or asphalt; or
- Soil disturbances, including but not limited to, soil sampling, soil remediation, or activities where soil is moved, removed, and/or stored.

The owner or operator of a metal melting facility will be required to conduct any construction or maintenance activity and subsequent clean-up that is not done in a total enclosure under negative air, using one or more of the following control measures:

- Inside a temporary negative air containment enclosure, vented a District-permitted negative air machine equipped with a filter(s) rated by the manufacturer to achieve a 99.97% control efficiency for 0.3 micron particles, that encloses all affected areas where fugitive lead-dust generation potential exists.
- In a partial enclosure, using wet suppression or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97% control efficiency for 0.3 micron particles, at locations where the potential to generate fugitive lead-dust exists.

If conducting construction or maintenance activity and subsequent clean-up inside a partial enclosure creates conditions posing physical constraints, limited accessibility, or unreasonable risks to safety, construction or maintenance activity may be conducted using wet suppression or a vacuum equipped with a filter(s) at locations where the potential to generate fugitive lead-dust exists.. Vacuum filters shall be rated by the manufacturer to achieve 99.97% control efficiency for 0.3-micron particles.

In addition to the above, the following requirements regarding construction or maintenance activity shall apply:

- Construction or maintenance activities must be stopped immediately if instantaneous wind speeds are 20 miles per hour or greater, unless conducted within a temporary negative air containment enclosure or partial enclosure. Construction or maintenance work may be continued if it is necessary to prevent the release of lead emissions;
- All concrete or asphalt cutting or drilling performed outside of a total enclosure with negative air shall be performed under 100% wet conditions; and
- Grading of soil shall only be performed on soils sufficiently wet to prevent fugitive dust.

All lead-contaminated equipment and materials used for any construction or maintenance activity requires immediate storage or cleaning after completion of work, by wet wash or a vacuum equipped with a filter(s) rated by the manufacturer to achieve a 99.97% capture efficiency for 0.3 micron particles. Storage and cleaning must be done in a manner that does not generate fugitive lead-dust.

Subdivision (j) – Source Tests

The proposed rule will require annual source tests for all lead control devices in order to demonstrate compliance with the lead control reduction efficiency for any lead point source emission control of 99%. Initial source tests for new and modified lead control devices with an initial start-up date on or after the adoption date of the proposed rule will be required within 60 days of initial start-up. Existing lead control devices in operation before the adoption date of the rule will require a source test no later than six months after adoption of the rule. An existing source

test, for existing lead control devices, conducted on or after January 1, 2014 may be used as the initial source test as long as the test:

- Is the most recent conducted since January 1, 2014;
- Demonstrated compliance with the applicable control standard;
- Is representative of the method to control emissions currently in use; and
- Was conducted using applicable and approved test methods.

The rule lists the following applicable test methods:

- SCAQMD Method 12.1;
- ARB Methods 12 and 436; and
- EPA Method 12.

Use of an alternative or equivalent test method will be allowed as long as it is approved in writing by the Executive Officer, in addition to the California Air Resources Board, or the U.S. EPA, as applicable. Facilities will be required to submit a pre-test protocol to the Executive Officer at least 60 calendar days prior to conducting the source test. Notification to the Executive Officer in writing shall also be required one week prior to conducting the source test.

The proposed rule provides an incentive for lead control devices that demonstrate exemplary lead emission rate source test results. If an annual source test to demonstrate compliance with the lead point source emission standards of subdivision (f) demonstrate a 99% or greater reduction of lead emissions, and total facility mass lead emissions of less than 0.020 pounds per hour, then the next test for all lead point sources shall be performed no later than 24 months after the date of the most recent test. In 2008, the U.S. EPA determined that facility lead emissions (point source and fugitives) of 0.5 tons per year represents an estimate of the lowest lead emission rate that could result in lead concentrations exceeding the NAAQS for lead. SCAQMD staff assumed an operation schedule of 24 hours/day, 365 days/year to arrive at an hourly lead emission rate from the facility of 0.114 pounds/hour. PR 1420.2 proposes a final ambient air lead concentration limit of 0.100 $\mu g/m^3$, therefore the 0.114 pounds/hour lead emission rate was scaled down proportionately resulting in an emission rate limit of 0.080 pounds/hour. The 0.020 pounds per hour lead emission rate was selected as it represents 25% of the lead emission rate of 0.080 pounds/hour.

Subdivision (k) – Recordkeeping

PR 1420.2 will require records indicating amounts of lead-containing material melted at the facilities to be maintained by the facility. Examples of records include purchase records, usage records, results of lead content analysis, or other SCAQMD-approved verification to indicate processing amounts. Some facilities, particularly those that melt scrap metal, have difficulty determining the amount of lead contained in the scrap based purchase records or limited lead analyses. As such, the Executive Officer may approve other alternative methods to calculate the amount of lead melted, including the percentages of lead contained within the melted metal. Records for all rule-required housekeeping, construction or maintenance activity, ambient air lead monitoring, wind monitoring, and lead control device inspection and maintenance must also be maintained. All records shall be maintained for five years, with at least the two most recent years kept onsite.

Subdivision (l) – Ambient Air Monitoring Reports

Under the proposed rule, facilities will be required to submit reports for monthly ambient air monitoring results for lead and wind data measured at each sampling location on a monthly basis. Beginning no later than 30 days after receiving Executive Officer approval of a Lead Ambient Air Monitoring and Sampling Plan, reports must be submitted by the 15th of each month for the preceding month, and must include the results of individual 24-hour samples and 30-day averages for each day within the reporting period. Facilities that are conducting ambient air monitoring and sampling already approved by the Executive Officer and meets the requirements in paragraph (e)(3), shall begin reporting no later than 30 days after rule adoption. In addition, any exceedance of the ambient air quality concentration shall be reported to the Executive Officer (1-800-CUT-SMOG) within 24 hours of receipt of completed sample analysis, followed by a written report to the Executive Officer no later than three business days after the notification.

Subdivision (m) – Compliance Plan

Compliance with PR 1420.2 is primarily based on ambient air concentrations of lead at fence line monitors. The proposed rule is designed to control lead point source emissions and fugitive lead-dust emissions to achieve the ambient air concentration limits. Under PR 1420.2, an owner or operator of a metal melting facility is required to submit a Compliance Plan if one or more of the following occurs:

- the ambient air lead concentration is greater than 0.120 µg/m^3 averaged over 30 consecutive days on and after July 1, 2016;
- the ambient air lead concentration is greater than 0.100 µg/m^3 averaged over 30 consecutive days on and after January 1, 2018; or
- the point source emission rate for all lead sources is greater than 0.080 pound per hour on and after July 1, 2016.

The purpose of this provision is to address those facilities that still may have difficulty demonstrating compliance with the ambient air lead concentration limit even after implementation of PR 1420.2 core requirements. The Compliance Plan will identify additional measures to be potentially implemented and at a minimum, each Compliance Plan submittal shall include:

- A comprehensive list of additional short term and long term lead emission reduction measures that may need to be implemented in the event that ambient air concentrations of lead exceed 0.150 µg/m^3 averaged over any 30 consecutive days from January 1, 2017, or exceed 0.100 µg/m^3 averaged over any 30 consecutive days after January 1, 2018. Additional lead emission reduction measures must include, but are not limited to, the following, as necessary to attain the applicable ambient air lead concentration limits specified in subdivision (d):
    - More stringent housekeeping measures, such as installation and maintenance of vehicle wet wash areas additional areas for cleaning, and increased cleaning frequencies;
    - Total enclosures with negative air pursuant to the requirements in Appendix 1 of PR 1420.2;
    - Modification to total enclosures under negative air (e.g., increased inward face velocities at openings, more stringent differential pressure averaging periods) and lead point source control devices, including but not limited to process and/or

operational changes, and maintenance of lead point source control devices to increase the capture and/or control efficiency;
    - Installation of multi-stage lead emission control devices , including but not limited to devices that use filter media other than a filter bag(s), such as HEPA and cartridge-type filters rated by the manufacturer to achieve a minimum of 99.97% control efficiency for 0.3 micron particles;
    - Process changes including reduced throughput limits;
    - Conditional curtailments including, at a minimum, information specifying the curtailed processes, process amounts, and length of curtailment; and
- Identification of lead reduction measures to be implemented relative to increasing ranges of exceedance levels of the ambient air concentration limit. The owner or operator is required to identify initial measures necessary to achieve the applicable ambient air lead concentration of 0.100 $\mu g/m^3$ averaged over any 30 consecutive days, as well as additional measures to be implemented in the event of subsequent exceedences of the applicable 0.100 $\mu g/m^3$ averaged over any 30 consecutive days.

The owner or operator shall implement one or more of the measures of the approved Compliance Plan necessary to attain the applicable ambient air concentration limit specified in subdivision (d) if lead emissions discharged from the facility contribute to ambient air concentrations of lead that exceeds any of the following:

- 0.150 $\mu g/m^3$ averaged over any 30 consecutive days on or after January 1, 2017, measured at any monitor pursuant to subdivision (e) or at any District-installed monitor; or
- Three exceedances of 0.100 $\mu g/m^3$ averaged over any 30 consecutive days on or after January 1, 2018, measured at any monitor pursuant to subdivision (e) or at any District-installed monitor.

In considering the measure(s) that the owner or operator shall implement that are necessary to attain the applicable ambient air lead concentration limit, the Executive Officer shall consider the cause, magnitude, and duration of the exceedance, as well as past exceedances, if applicable. Implementation of each measure shall be based on the implementation schedule of paragraph (m)(5) in the approved Compliance Plan.

Under Proposed Rule 1420.2, the owner or operator is required to specify the schedule and prioritization of each lead emission reduction measure. For each category of measures in the Compliance Plan, the owner or operator can specify a variety of measures that can be implemented. As specified in paragraph (m)(5), the prioritization of lead emission reduction measures should be in order from the lowest to highest potential lead emissions reductions. Implementation of measure(s) will be based on the lead emission source that caused the exceedance, the magnitude of the exceedance, number of exceedance(s), and the selection of measure(s) that will avert a future exceedance. In some situations, there may be a need if there are subsequent exceedances of the ambient air concentration limits to implement one or more lead emission reduction measures prior to the completion of the implementation of the initial measures. If there is information to support the determination that implementation of the initial measures will not ensure that there will not be a subsequent exceedance of the ambient concentration limit of 0.100 $\mu g/m^3$ averaged over any 30 consecutive days, the Executive Officer may require that additional lead emission reduction measures be implemented prior to the completion of the implementation of the initial measures.

In specific situations where the total facility lead point source emission rate, as determined through a source test, is greater than 0.080 pound per hour, measures to reduce lead point source emissions must be implemented first. Please refer to subdivision (m) for more details regarding the implementation schedule for lead reduction measures, updating a Compliance Plan, and other requirements.

Subdivision (n) – Visible Emissions

Under PR 1420.2, facilities are not to discharge into the atmosphere fugitive lead-dust emissions that exceed Ringlemann 0.5, or 10 percent opacity, for more than three minutes aggregate in any 60-minute period. This is a current requirement of Rule 1420 and is being required in PR 1420.2 since facilities subject to PR 1420.2 will be exempt from Rule 1420.

Subdivision (o) – Exemptions

PR 1420.2 provides exemptions to the ambient air monitoring and point source control requirements of the proposed rule depending on certain criteria being met. Paragraph (n)(1) allows facilities to be exempt from the ambient air monitoring requirements set forth in subdivision (e) if the facility can demonstrate ambient lead concentration levels of less than or equal to 0.070 $\mu g/m^3$ averaged over 30 consecutive days, measured during normal operating conditions representative of the facility. A facility shall be granted exemption upon Executive Officer approval of an air monitoring relief plan contains all of the following:

- Air dispersion modeling analysis that demonstrates an ambient air lead concentration of $\leq$ 0.070 $\mu g/m^3$ averaged over 30 consecutive days representative of normal facility operations; and
- One (1) year of ambient air lead monitoring data without a single day exceeding an ambient air lead concentration of 0.070 $\mu g/m^3$ averaged over 30 consecutive days; and
- The facility's most recent source tests approved by the District demonstrate a total facility mass lead emission rate from all lead point sources of less than 0.040 pounds per hour. The lead emission rate of 0.040 pounds per hour represents 50% of the 0.080 pounds per hour lead emission rate discussed above under *Subdivision (j) – Source Tests*.

Any violation of the ambient air lead concentration limits required by subdivision (d) or any permit modification to equipment or processes that results in an increase in lead emissions that can be shown to cause an exceedance with the ambient air lead concentrations required by subdivision (d) shall result in revocation of the air monitoring relief plan. Upon revocation of the air monitoring relief plan, the owner or operator of a metal melting facility shall comply with the requirements of subdivision (e) no later than 180 days after revocation of the air monitoring relief plan.

Paragraph (n)(2) of PR 1420.2 allows facilities to not be subject to the requirements of subdivision (f) for any lead point source that has an uncontrolled emission rate of 0.005 pounds per hour provided that a source test pursuant to subdivision (j) is conducted for the lead point source at least once every 24 months.

Paragraph (n)(3) allows facilities as described in subdivision (b) to be exempt from PR 1420.2 if the amount of lead melted at the facility has been reduced to less than 50 tons per year. This amount shall be based on lead melting limits specified in facility permit conditions, and facility

lead processing records required under subdivision (k) of this rule or subdivision (i) of Rule 1420 – Emission Standards for Lead. A facility that is exempt from PR 1420.2 shall be subject to the requirements of Rule 1420.

Further, paragraph (n)(4) exempts any metal melting facility subject to the PR 1420.2 from the requirements of Rule 1420. PR 1420.2 goes beyond the requirements of Rule 1420 and effectively supersedes the requirements set forth in Rule 1420. A Rule 1420 Compliance Plan that has been issued to the owner or operator of a metal melting facility prior to adoption of PR 1420.2 shall be subsumed into the requirements of this rule and be considered a Rule 1420.2 Compliance Plan, for which the owner or operator shall continue to comply with all conditions stated within the plan. Any additional requirements triggered pursuant to subdivision (m) shall be included in the subsumed Compliance Plan.

Appendix 1 – Total Enclosures with Negative Air (Conditional Requirement)

Appendix I specifies the requirements for total enclosures with negative air that are required to be included in the Compliance Plan. As specified in Appendix A, areas with a total ground surface area of 10,000 square feet or more require a minimum of three digital differential pressure monitors: one at the leeward wall of the total enclosure, one at the windward wall, and one at an exterior wall that connects the leeward and windward wall at a location defined by the intersection of a perpendicular line between this wall and a straight line between the other two monitors in order to account for shifts in draft direction throughout the enclosure. Each total enclosure is required to be maintained at a negative pressure of at least 0.02 mm of Hg (0.011 inches H_2O) and an in-draft velocity of at least 200 feet per minute at any opening such as vents, windows, passages, doorways, bay doors, and roll-ups. Differential pressure shall be based on a rolling 15-minute average in order to determine compliance with a negative pressure requirement of at least 0.02 mm of Hg (0.011 inches H_2O). For smaller enclosures, at least one differential pressure monitor, continuously measuring the negative pressure of the total enclosure, is required to be installed on the leeward wall. In-draft velocities for each total enclosure shall be determined by placing an anemometer, or an equivalent device approved by the Executive Officer, at the center of the plane of any opening of the total enclosure.

Digital differential pressure monitors must be capable of measuring and displaying negative pressure in the range of 0.01 to 0.2 mm Hg (0.005 to 0.11 inches H_2O) with a minimum increment of measurement of plus or minus 0.001 mm Hg (0.0005 inches H_2O). Digital differential pressure monitoring systems will need to continuously record, at a minimum, 1-minute data for differential pressure measurements which are to be used to calculate rolling 15-minute averages. The monitors will also need to be equipped with a continuous strip chart recorder or electronic recorder approved by the Executive Officer. If the facility elects to use an electronic recorder, the recorder will need to be capable of writing data on a medium that is secure and tamper-proof. The recorded data needs to be readily accessible upon request by the Executive Officer. A copy of any software that is not readily available to the Executive Officer and required to access the recorded data, including all subsequent revisions, must be provided to the Executive Officer at no cost. If a device is needed to retrieve and provide a copy of such recorded data, the device must be maintained and operated at the facility.

Additionally, to ensure availability of data that may be useful in determining reasons for changes in ambient air lead concentrations during power outages, installation of a backup, uninterruptible power supply will be required on all digital differential pressure monitors. The amount of backup power supplied must be capable of sufficiently powering the monitors until processes and equipment at the facility can be safely brought down if the power outage is for a substantial period.

Alternative monitoring methods and procedures to those specified in Appendix 1 may be submitted by the facility for review and approval by the Executive Officer. Approval shall be granted if it is demonstrated that the alternative method or procedure is equally or more effective than the methods or procedures prescribed in Appendix 1.

Appendix 2 – Periodic Smoke Test

Appendix 2 specifies the requirements for periodic smoke tests to demonstrate capture efficiency for ventilation systems of add-on air pollution control device(s) pursuant to paragraph (f)(5). The periodic smoke test requirement of PR 1420.2 will not be required if performing such test presents an unreasonable risk to safety. An example of such unreasonable risk to safety includes having to conduct a smoke test at collection sites that would be extremely dangerous, if not deadly, for somebody to work in that collection zone. Refer to PR 1420.2 for detailed information on smoke test procedures.

CHAPTER 3: IMPACT ASSESSMENT

EMISSIONS IMPACT

CALIFORNIA ENVIRONMENTAL QUALITY ACT

SOCIOECONOMIC ASSESSMENT

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

REGULATORY COMPARATIVE ANALYIS

EMISSIONS IMPACT

PR 1420.2 affects 13 metal melting facilities that melt more than 100 tons of lead annually. Source categories include scrap recyclers, aerospace, iron and steel mini-mills, and lead-acid battery manufacturing. These facilities are currently regulated by various federal NESHAPs and state ATCMs and they have installed point source emission controls in order to comply with applicable federal and state requirements to reduce lead emissions. Implementation of PR1420.2 will reduce point and fugitive emissions. Quantifying the point source emission reductions is difficult as many sources do not have current source tests and quantifying emission reductions from fugitive sources is difficult. Implementation of PR 1420.2 will require an ambient air lead concentration of 0.150 $\mu g/m^3$ from the date of adoption for facilities that already have an ambient air monitoring system approved by the Executive Officer that meets the requirements of the proposed rule. For facilities that do not already have an ambient air monitoring system approved by the Executive Officer, the ambient air concentration limit of 0.150 $\mu g/m^3$ averaged over any 30 consecutive days will be effective 90 days after approval of ambient air monitoring and sampling sites by the Executive Officer. The final ambient air lead concentration limit of PR 1420.2 is 0.100 $\mu g/m^3$ averaged over any 30 consecutive days and is effective beginning January 1, 2018.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

PR 1420.2 is considered a "project" as defined by the California Environmental Quality Act (CEQA), and the SCAQMD is the designated lead agency. Pursuant to the CEQA and SCAQMD Rule 110, the SCAQMD staff evaluated the proposed project and prepared a Draft Environmental Assessment (EA), which was circulated for public review from July 17, 2015 to August 18, 2015. On July 21, 2015, a Revised Draft EA was circulated for public review and the original comment period was extended to August 19, 2015. The public workshop meeting also solicited public input on any potential environmental impacts from the proposed project. Comments received at the public workshop on any environmental impacts were considered when developing the final CEQA document for this rulemaking.

SOCIOECONOMIC ASSESSMENT

A socioeconomic analysis has been conducted and was released for public review and comment on August 5, 2015, with an update version released on September 2, 2015.

DRAFT FINDINGS UNDER CALIFORNIA HEALTH AND SAFETY CODE SECTION 40727

Requirements to Make Findings
California Health and Safety Code Section 40727 requires that prior to adopting, amending or repealing a rule or regulation, the SCAQMD Governing Board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference based on relevant information presented at the public hearing and in the staff report.

Necessity
PR 1420.2 is needed to further protect public health by reducing lead emissions from metal melting facilities. For a toxic air contaminant, such as lead, for which there is no level of exposure that

can yet be identified with confidence, as clearly not being associated with some risk of deleterious health effects, the intent of this proposed rule is to reduce emissions to the lowest level achievable through the most effective feasible control method. The proposed rule will reduce ambient lead emissions from point sources as well as fugitive emissions from facility operations. In addition, the proposed rule will help ensure that violations of the NAAQS do not occur.

An ambient lead concentration limit of 0.100 $\mu g/m^3$ will be more health protective for communities that live around metal melting facilities, particularly younger children. There is substantial scientific justification provided through EPA's development of the 2008 Lead NAAQS and the 2015 Proposed Rule to Retain the Current Lead NAAQS evidence-based framework to support the policy decision to establish an ambient limit of 0.100 $\mu g/m^3$. The above discussion provides a description of EPA's evidence-based framework to establish the 2008 Lead NAAQS of 0.15 $\mu g/m^3$ and key policy judgments made regarding the level of health protection and margin of safety for the national standard. As previously stated, there are currently no commonly accepted guidelines or criteria within the public health community that would provide a clear basis for reaching a judgment as to the appropriate degree of public health protection that should be afforded to protect against risk of neurocognitive effects in sensitive populations, such as IQ loss in children." (73 FR 67004). As a regional air agency, developing a source-specific-rule for metal melting facilities, the SCAQMD staff is recommending policy decisions that are more health protective for communities, particularly young children, that are affected by lead emissions from metal melting facilities regulated under Proposed Rule 1420.2. The above discussion substantiates the policy decision to establish an ambient lead concentration limit of 0.100 $\mu g/m^3$, with some key points of the above discussion highlighted below:

- No safe blood level of lead in children has been identified (CDC, 2012a)
- The developing nervous system in children is among the sensitive-- if not the most sensitive-endpoints. (73 FR 66976)
- Lead affects children's IQs at exposure levels appreciably lower than recognized. (CHPAC, 2105)
- Pre-school children or children under five years old are the most vulnerable to exposure and adverse health effects, and thereby represent the greatest at-risk population. (EPA, 2013)
- Younger children absorb substantially more lead than adults, especially children below 2 years of age. (OEHHA, 2009)
- No study has determined a level of lead in blood that does not impair child cognition. Further, the effects are long-lasting. Damage to a child's developing brain from lead is not reversible. (AAP, 2008)
- CASAC commented that ''a population loss of 1–2 IQ points is highly significant from a public health perspective.'' (EPA, 2008)
- Air-to-blood ratio of 1:10 is also supported by EPA's evidence based air-related IQ loss data and is even more health protective (CHPAC, 2008b)

Based on all the foregoing, the evidence supports the District's policy decision to establish a final lead limit in ambient air at 0.100 $\mu g/m^3$.

Authority
The SCAQMD Governing Board has authority to adopt PR 1420.2 pursuant to the California Health and Safety Code Sections 39002, 39650 et. seq., 40000, 40001, 40440, 40441, 40702, 40725 through 40728, 41508, 41700 and 41706.

Clarity
PR 1420.2 is written or displayed so that its meaning can be easily understood by the persons directly affected by it.

Consistency
PR 1420.2 is in harmony with and not in conflict with or contradictory to, existing statutes, court decisions or state or federal regulations.

Non-Duplication
PR 1420.2 will not impose the same requirements as any existing state or federal regulations. The proposed amended rule is necessary and proper to execute the powers and duties granted to, and imposed upon, the SCAQMD.

Reference
By adopting PR 1420.2, the SCAQMD Governing Board will be implementing, interpreting or making specific the provisions of the California Health and Safety Code Sections 40001 (rules to achieve and maintain ambient air quality standards), 41700 (nuisance), 41706(b) (emission standards for lead compounds from non-vehicular sources), Federal Clean Air Act (CAA) Section 112 (Hazardous Air Pollutants), and CAA Section 116 (more stringent state standards).

ALTERNATIVE ANALYSIS

Health and Safety Code Section 40440.5, subsection (c)(3) requires an analysis of alternative control measures. Proposed Rule 1420.2 was developed with input with the Proposed Rule 1420.2 Working Group which includes industry, environmental, and agency stakeholders. Throughout the rule development process, the SCAQMD staff worked with stakeholders to develop the overall control strategy and approach. For example, earlier versions of the proposed rule had a series of control strategies that facilities were required to implement. Working Group members suggested a different approach that had basic core requirements, and additional requirements that could be implemented through a compliance plan only if a facility exceeded the ambient lead limits specified in the proposed rule. The SCAQMD staff also looked at alternative point source requirements, monitoring and sampling frequencies, housekeeping provisions, and exemptions from specific requirements such as monitoring and sampling.

COMPARATIVE ANALYSIS

Health and Safety Code section 40727.2 requires a comparative analysis of the proposed rule with any Federal or District rules and regulations applicable to the same source. See Table 3-1 below.

Table 3-1: Comparison of PR 1420.2 with SCAQMD Rule 1420, the CARB 1998-12-30 Non-Ferrous Metal Melting ATCM, the 2008 Lead NAAQS, and the NESHAP for Secondary Lead Smelters

Rule Element	PR 1420.2	SCAQMD Rule 1420	CARB 1998-12-30 Non Ferrous Metal Melting ATCM	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
Applicability	Facilities that melt 100 tons or more of lead in any calendar year	Facilities that use or process lead-containing materials	Facilities that melt non-ferrous metals including lead	All States	Secondary lead smelters
Ambient Air Quality Standard	Beginning [Date of Adoption], for facilities that already have an ambient air monitoring system approved by the Executive Officer, meet an initial limit of 0.150 µg/m^3 averaged over 30 consecutive days. All other facilities must meet the initial limit no later than 90 days after approval of ambient air monitoring and sampling sites by the Executive Officer. On and after January 1, 2018, all facilities must meet 0.100 µg/m^3 averaged over 30 consecutive days.	1.5 µg/m^3 averaged over 30 days	None	0.15 µg/m^3: 3-month rolling average Demonstrated over a 3-year period.	None
Total Enclosures	Total enclosure for furnace, refining, casting, lead oxide production and pasting areas	None	Enclosed storage area for dust-forming material including, but not limited to, dross, ash, or feed material	None	Total or partial enclosures for: - Smelting furnace and dryer charging hoppers, chutes, and skip hoists; - Smelting furnace lead

Rule Element	PR 1420.2	SCAQMD Rule 1420	CARB 1998-12-30 Non Ferrous Metal Melting ATCM	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
					taps, and molds during tapping; - Refining kettles; - Dryer transition pieces; and Agglomerating furnace product taps
Emission Standard and Requirements for Lead Control Devices	99% control efficiency for lead or meet an outlet mass lead emission rate of less than 0.00030 lbs/hr	99% control efficiency for particulate matter; or 98% control efficiency for lead	99% control efficiency	None	Concentration of 2.0 mg/dscm
Compliance Plan	Only required if a facility exceeds ambient lead concentration limit of 0.120 µg/m^3 from July 1, 2016 to December 31, 2017 or 0.100 µg/m^3 on or after January 1, 2018, or total facility point source emissions greater than 0.080 lb/hour after July 1, 2016. Identifies additional lead control measures beyond the rule.	Specifies general facility information	None	None	None
Ambient Air Monitoring Requirements	- Minimum of three monitors at facility locations approved by the Executive Officer	Minimum of two monitors at facility locations approved by the Executive Officer	None	For states, a minimum of: - One source-oriented monitor at all facilities	None

Rule Element	PR 1420.2	SCAQMD Rule 1420	CARB 1998-12-30 Non Ferrous Metal Melting ATCM	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
	- Provisions included for monitor failure - One year sample retention - Samples collected once every three days or daily depending on the exceedance of ambient air concentration limits, and the severity. Provisions included to cease monitoring if lead concentration is below 0.070 µg/m^3 average over 30 consecutive days, no single day exceeding 0.070 for one full, and total facility mass lead emissions are less than 0.040 lb/hour. - Results reported monthly	Samples collected every six days Results reported quarterly		emitting 1.0 tons of lead/year; and - One non-source-oriented monitor in urban areas with a population of at least 500,000 people - Samples collected every six days	
Housekeeping and Maintenance Requirements	- Requirements for storage of dust-forming material - Daily cleaning of surfaces subject to vehicular traffic - Storage and disposal, lead or lead-containing wastes in closed containers - Posted facility vehicle speed limit of 5 miles per hour on any roadway located within 75 feet of total enclosure; 15 miles per hour speed limit for roadways located more	Requirements for storage of dust-forming material; weekly cleaning of surfaces subject to vehicular or foot traffic; and storage, disposal, recovery, and recycling of lead or lead-containing wastes generated from	Surfaces subject to vehicular or foot traffic shall be vacuumed, wet mopped or otherwise maintained	None	Periodic wash down of plant roadways (lower frequency than Rule 1420.1); wet suppression of battery breaking area storage piles; vehicle wet washing of vehicles exiting the materials handling and storage areas

Rule Element	PR 1420.2	SCAQMD Rule 1420	CARB 1998-12-30 Non Ferrous Metal Melting ATCM	2008 Lead NAAQS	NESHAP from Secondary Lead Smelting
	than 75 feet from total enclosure - All outside concrete or asphalt cutting performed under 100% wet conditions - Grading of soil only on soils sufficiently wet to prevent fugitive emissions	housekeeping activities			
Reporting Requirements	- Monthly ambient air monitoring reports - Exceedances of ambient air concentration to be reported within 24 hours - Failure to collect 24 hour sample to be reported within 2 hours of knowing the sample was not collected - Source test results to be reported within 90 days	Ambient air lead and wind monitoring for any lead-processing facility that is required or elects to do ambient air monitoring	- Source test results Amount of metal processed if requesting exemption	For states: - State Implementation Plan submittal; - Periodic emissions reports from stationary source monitors; - Ambient air quality data and associated assurance data	- Lead control alarm/failure reports including fugitive dust control measures performed during failures

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APPENDIX A: COMMENTS AND RESPONSES

Comments and Responses

PURPOSE:

1. Comment: From the data that we have been able to acquire, the battery manufacturers industry's contribution to lead emissions in the South Coast Air Basin is almost negligible. Based on data we acquired, Exide's contribution to lead emissions in the South Coast Air Basin accounted for 85% of the total emissions inventory for battery manufacturing, lead oxide manufacturing and lead smelting sources. As a result, the need to lower the ambient air concentration limit to achieve attainment with the Lead NAAQS in LA County appears to be unnecessary.

Response: The relative contribution of the battery industry's contribution to lead emissions in comparison to those from other industries is not the only factor that should be taken into consideration when determining impacts to the ambient air lead concentration. For instance, Trojan Battery, a lead-acid battery manufacturer in Santa Fe Springs, reported low annual emissions, but SCAQMD ambient air monitoring data for the facility during the same emissions reporting period shows that a facility that reports low stack emissions can have high ambient air concentrations of lead that can exceed federal ambient air quality standards. For this reason, it is important that regulations exist to set requirements for ambient air concentration limits, and control measures for both stack and fugitive lead emissions through performance standards for point sources and best management practices to control and minimize fugitive emissions and the accumulation of fugitive lead dust. SCAQMD staff has developed Proposed Rule 1420.2 in order to address these issues in order reduce the exposure of lead to the public for health protection in addition to helping ensure attainment and maintenance of the National Ambient Air Quality Standard (NAAQS) for lead. Cumulatively the metal melting facilities subject to PR 1420.2 melt more than 50,000 tons of lead annually. Lead is classified as a "criteria pollutant" under the federal Clean Air Act. The Office of Environmental Health Hazard Assessment (OEHHA) also identifies it as a carcinogenic toxic air contaminant (TAC). Chronic health effects include problems such as nervous and reproductive system disorders, neurological and respiratory damage, cognitive and behavioral changes, and hypertension. Exposure to lead can also potentially increase the risk of contracting cancer. Young children are especially susceptible to the effects of environmental lead because their bodies accumulate lead more readily than do those of adults, and because they are more vulnerable to certain biological effects of lead including learning disabilities, behavioral problems, and deficits in IQ.

APPLICABILITY

2. Comment: Despite our efforts to minimize the amount of lead containing scrap introduced to the furnace, negligible amounts of lead (in comparison with the total mass of ferrous scrap) are introduced to the furnace. As a result, we have estimated the lead content in the incoming scrap by analyzing its collected baghouse dust for lead. Based on our estimation the accidental lead content of the ferrous scrap processed at our facility is 0.03% resulting in lead throughputs ranging from 73 tons in 2009 to 117 tons in 2013.

Response: Based on your analysis, your facility would be subject to the provisions of the rule. The rule applies to all persons who own or operate a metal melting facility that melts 100 tons or more of lead a year based on any of the five calendar years prior to the date of adoption, or any year thereafter. If further analysis demonstrates that the lead throughput is less than 50 tons per year, your facility may be exempt from the rule provided you meet the criteria established in paragraph (o)(3) in the proposed rule. However, this analysis assumes that there is 100 percent collection efficiency and there are no fugitive emissions.

3. Comment: We request that the SCAQMD staff provide the basis for defining entities as among the class of "metal melters," and for prioritizing attention to those entities above those documented to be releasing far more lead into the air.

Response: During the rule development process for PR 1420.2, the SCAQMD staff conducted a comprehensive review of lead emissions data taking into consideration multiple data sources including emissions reports from the SCAQMD AER Program, U.S. EPA's Toxic Release Inventory (TRI) database, permitting data, compliance data, source test results garnered from the AB 2588 Air Toxics Program, and ambient air lead monitoring data. Facilities were categorized based on criteria such as high lead emissions, amounts of lead processed, ambient air monitoring data, and similar process types. Based on this review, SCAQMD staff determined that high emissions or high ambient air lead concentrations were exhibited by facilities that shared the common metallurgical process of metal melting through the use of various types of furnaces, including casting and refining operations. Thus, these facility types were collectively categorized and termed metal melting facilities. SCAQMD has also imposed stringent requirements on large lead-acid battery recyclers through Rule 1420.1. During the review of available lead emissions data for years 2010-2013, SCAQMD staff also identified several petroleum refineries, a municipal trash incinerating facility, and a glass making facility with high reported emissions of lead. However, the majority of the lead emissions reported by these sources were emissions calculated using default lead emission factors from U.S. EPA's *Compilation of Emission Factors (AP-42)* for the combustion of fuels containing trace amounts of lead. Additionally, fugitive lead emissions reported by these

facilities to the TRI database use conservative calculations such as mass balance equations considering the amount of lead brought on-site minus the amount of lead in the final product, the amount released in wastewater, and the amount disposed as solid waste. Lastly, there was no available ambient air lead monitoring data for these facility types showing elevated levels. For these reasons the SCAQMD prioritized the regulation of metal melters as well as facilities subject to Rule 1420.1. The other lead sources are currently subject to Rule 1420 and the lead emissions from these source categories will be further reviewed and addressed in a future amendment to Rule 1420.

DEFINITIONS

4. Comment: We are concerned about the definition of Fugitive Lead Dust in PR 1420.2, specifically, PR 1420.2 defines Fugitive Lead Dust as any solid particulate matter containing lead that is in contact with ambient air and has the potential to become airborne. We recommend that SCAQMD consider a definition more aligned with Rule 1420 for PR 1420.2, which sets a lead content threshold for fugitive lead-dust emissions, as well as a particle size range for dust-forming material.

Response: The definition of "Fugitive Lead-Dust" is the same as is contained in Rule 1420.1 – Emission Standards for Lead and Other Toxic Air Contaminants from Large Lead-Acid Battery Recycling Facilities. The definition in Rule 1420 – Emission Standards for Lead includes a lead content threshold of 0.5% by weight. However, as the ambient monitors for the proposed rule measure total lead deposited, the exclusion of low-lead content particles from the definition of fugitive lead-dust could result in higher ambient results because of improper handling of low-lead content dust. Thus, excluding low-lead particles may provide some relief from housekeeping and maintenance requirements, but result in a greater chance for ambient air lead concentration exceedances. The fugitive lead dust definition in Rule 1420 does not discriminate by particle size range.

5. Comment: There may be a need to define a de minimis lead concentration level below which a point source will be required to be controlled or source tested.

Response: The proposed rule contains language in paragraph (o)(3) that exempts any lead point source that has an uncontrolled lead emission rate of 0.005 pounds per hour from the Lead Point Source requirements of subdivision (f). However, it still requires that a source test be conducted at least once every 24 months to ensure that the level of emissions still qualify for exemption.

6. Comment: Please clarify the definition of "lead containing materials." Specifically, we request that the SCAQMD staff identify the types of materials included in this definition. For example, does the definition include semi-finished

batteries (i.e., uncharged dry batteries without vent caps but that have covers).

Response: It is not possible for District staff to predict all types of materials a facility may have on its premises that contain lead. A facility can assume that if the material contains greater than trace amounts of lead, and that the lead-containing material has the potential to generate fugitive lead dust, that the material should be considered a "lead containing material". This consideration was taken into account for many of the requirements of PR 1420.2 regarding lead-containing materials, as those requirements imply that a control measure is necessary if the lead-containing material has the potential to generate fugitive lead dust. Examples of some lead-containing materials that have the potential to generate fugitive lead dust include lead-oxide paste/powder, furnace slag, dross, and flue dust. Semi-finished batteries that are fully enclosed in the battery casing, but without vent caps would not be considered a lead-containing material that has the potential to generate fugitive lead dust.

AMBIENT AIR LEAD CONCENTRATION LIMITS

7. Comment: Dispersion modeling results for our new baghouse and melt shop evacuation shop estimated a maximum monthly average lead concentration of 0.064 $\mu g/m^3$ at the fence line. Therefore, we have no concerns about meeting 0.10 $\mu g/m^3$ over any consecutive 30 days after the new baghouse, as planned and permitted, is in operation.

Response: Staff looks forward to verifying your future compliance with the proposed ambient air concentration limits of PR 1420.2.

8. Comment: We are concerned that our facility would be held accountable for elevated ambient air concentrations of lead even when the background levels of ambient air lead concentrations are high. These very low levels of background concentrations will not significantly affect companies.

Response: Data values from measurements conducted by SCAQMD at non-source-oriented monitors operated in the Basin were reviewed for years 2007 through 2013 and showed background concentrations which are of 0.01 $\mu g/m^3$ to 0.03 $\mu g/m^3$ and well below the final ambient lead concentration limits in PR 1420.2 which is 0.100 $\mu g/m^3$ by January 1, 2018.

9. Comment: We request that the SCAQMD staff identify the statutory mandate that requires adoption of regulatory requirements based on technical feasibility as opposed to protection of public health.

Response: The purpose of PR 1420.2 is to protect public health by reducing emissions and ambient air concentrations of lead, reduce public health impacts by

reducing the exposure to lead, and to help ensure attainment and maintenance of the NAAQS for lead. Technical feasibility was evaluated in order to ensure that the proposed measures can be accomplished by facilities subject to the proposed rule.

AMBIENT AIR MONITORING REQUIREMENTS

10. Comment: We support daily monitoring for facilities melting more than 1,000 tons per year of lead, or if the ambient air concentration exceeds 0.11 µg/m^3 over any 30 consecutive days. We also support an off-ramp provision for monitoring based on meeting the proposed 0.100 µg/m^3 limit over a certain period of time, upon written approval from SCAQMD.

Response: PR 1420.2 has been modified to require a base requirement of 1-in-6 day sampling for all facilities regardless of annual lead melting amounts. However, facilities that have an approved HRA and have monitored ambient lead concentration(s) above 0.120 µg/m^3 are required to monitor daily. Facilities will be required to increase the monitoring frequency to 1-in-3 days (if lead concentration are 0.150 – 0.300 micrograms per cubic meter averaged over any 30 consecutive days on and after January 1, 2018)) and in some cases daily ambient air monitoring (if lead concentrations are greater than 0.300 micrograms per cubic meter averaged over any 30 consecutive days before January 1, 2018 or are greater than 0.150 micrograms per cubic meter averaged over any 30 consecutive days on and after January 1, 2018) based on the ambient lead thresholds and dates specified in paragraph (e)(5) of the proposed rule. An off-ramp provision for monitoring has also been included in paragraph (o)(1) if air dispersion models predict no exceedances of 0.070 µg/m^3, one year of monitoring results indicate an ambient air lead concentration below 0.070 µg/m^3, and the total facility mass lead emission rate is less than 0.040 pounds per hour.

11. Comment: In light of U.S. EPA's ongoing proceeding that proposes to retain the NAAQS for lead at 0.15 µg/m^3, additional emission limitations, operational requirements and lowered ambient levels SCAQMD proposes to adopt, raises issues of fundamental national importance and merit more substantive attention than the SCAQMD is devoting to them. For example, SCAQMD has yet to present any scientific justification for the reduced ambient standard or, indeed, for the rule as a whole.

Response: Please refer to Chapter 1, Section "Justification for Lowering the Ambient Air to 0.100 µg/m^3.

12. Comment: The SCAQMD staff estimated that the proposed ambient air monitoring requirements would result in an estimated annual cost of $80,000 to $100,000. However, we believe that this cost is significantly underestimated by as much as half the actual cost. Further, we do not

believe that proposed monitoring results yielding these significant costs provide a public benefit given that U.S. EPA has completed an extensive evaluation of the effects of lowering the NAAQS limit below 0.15 µg/m^3 and concluded that there would be "no meaningful health benefit" to lowering the limit below this level.

Response: SCAQMD staff has acknowledged that initial estimated costs for the original proposal for ambient air monitoring did not include operational and maintenance cost, and was therefore underestimated. PR 1420.2 has significantly modified the ambient air monitoring and sampling requirements since the original draft rule language. Modifications include a reduced sampling frequency of once every 6 days versus daily monitoring, removal of back-up power for general monitoring, and allowances for the facility personnel approved by the Executive Officer to conduct various aspects of ambient air monitoring and sampling. In order to estimate costs for the current proposal for ambient air monitoring, cost estimates were obtained from three separate companies in the Basin that currently provide services to conduct measurements of ambient air lead and analyze samples. The proposed ambient air monitoring costs are based on the purchase of ambient air monitors and back-up power, laboratory costs to analyze the samples, labor, maintenance, filter replacement and reporting. Staff provided detailed costs to the working group for discussion. SCAQMD staff estimates the cost of annual ambient air monitoring to be in the range of $62,000 to $72,000, which includes a sampling schedule of 1-in-6 days, and 30 days of daily sampling which is required during the first month of operation. For facilities triggering daily ambient air monitoring on an ongoing basis, cost was estimated to be approximately $287,500.

Staff disagrees with the conclusion reached by the commenter that there would be "no meaningful health benefit" to lowering the limit below 0.15 µg/m^3. Please refer to Chapter 1, Section "Justification for Lowering the Ambient Air to 0.100 µg/m^3" for the detailed discussion.

13. Comment: There is a provision for ambient sampling to be done every three days (after the first 30 days) if the annual amount of lead melted is less than 1000 tons. For "*Facilities that melt 1000 tons of lead per year or more shall collect a 24-hour, midnight-to-midnight, sample collected daily, on a schedule approved by the Executive Officer"*. Does that imply that facilities melting 1000 tons of lead per year or more may be provided the same option depending on our first 30 days of results? Also, can facilities conduct sampling ourselves or will we need to hire a 3rd "independent" party?

Response: PR 1420.2 has been modified to require a base requirement of 1-in-6 day sampling for all facilities regardless of annual lead melting amounts. However, facilities that have an approved HRA and have monitored ambient lead concentration(s) above 0.120 µg/m^3 are required to monitor

daily. Facilities will be required to increase the monitoring frequency to 1-in-3 days and in some cases daily ambient air monitoring based on the ambient lead thresholds and dates specified in paragraph (e)(5) of the proposed rule. Facilities are allowed to conduct sampling themselves provided the sampling staff have been trained pursuant to paragraph (e)(11) of the proposed rule, which states that the monitoring shall be conducted by persons approved by the Executive Officer, or facility personnel trained and certified to conduct ambient air quality monitoring demonstrated through successful completion of a course offered or approved by the Executive Officer..

14. Comment: What kind of meteorological data will need to be recorded per (m)(1)(B)? Our facility has an on-site weather station that can record hourly readings.

Response: The meteorological data required by the proposed rule are wind speed and wind direction. The wind speed and direction information is required to be capable of determining minute-data in order to calculate and report an hourly average.

15. Comment: What will facilities need to do to conduct 24-hour sampling on a schedule different than midnight to midnight (if that's possible).

Response: The option to conduct sampling on an alternative schedule must be approved by the Executive Officer. It must be demonstrated that the alternative schedule is adequate to routinely collect valid 24-hour samples and is conducted using the sampling methods referenced in paragraph (e)(8) of the proposed rule.

16. Comment: What do we need to do to have our Environmental Health and Safety Specialist take the samples as opposed to hiring a third party to do the work?

Response: Persons, including facility staff, may conduct ambient monitoring if they are trained and certified to conduct ambient air quality monitoring demonstrated through successful completion of a course offered or approved by the Executive Officer. A list of courses will be made available to the public after adoption of PR 1420.2.

POINT SOURCE EMISSIONS CONTROLS

17. Comment: Our facility fully supports the purpose for PR 1420.2. Since 2010 we have spent $2.4 million on preliminary engineering design, planning and permitting of an upgrade project that will cost a total of $37 million. The upgrade project will replace our baghouse and melt shop evacuation system.

The new EAF baghouse project will be fitted with PTFE bags and will have a guaranteed filterable PM outlet concentration of 0.0012 gr/dscf. This

concentration is approximately four times lower than the New Source Performance Standard for PM from an EAF. The PM outlet concentration from our EAF baghouse would be the lowest permitted concentration for an EAF baghouse. Further, no other steel mill has proposed or successfully implemented any different controls than fabric filtration.

Response: The SCAQMD staff appreciates your comment and support of the proposed rule.

18. Comment: Our facility would not be able to meet the emissions rate limit proposed in PR1420.2 (consistent with Rule 1420.1) even with the installation of a new baghouse and melt shop evacuation system. However, our facility can comply with a lower ambient fence line standard and meets all the required AB 2588 health risk reductions without meeting the emission rate limit in 1420.2. Therefore, emission rate limits are not needed to achieve the objective of 1420.2.

A "one-size fits-all" approach for the point source emission rate is inappropriate given the diverse nature of facilities subject to the proposed rule. The point source emissions limit should be evaluated against industry specific equipment and performance. Specifically, if a lead point source emissions rate is included in PR 1420.2 it should be based on:

- Dispersion modeling to verify the rate required to ensure and maintain compliance with the lead NAAQS, and
- HRA tools (e.g., AB 2588 guidelines) to protect public health.

Response: PR 1420.2 no longer has a requirement to only meet a lead point source emission rate and instead requires that lead point sources reduce lead emissions by 99% or meet an outlet mass lead emission rate of less than 0.00030 lbs/hr as determined by a source test conducted pursuant to subdivision (j). This requirement is readily achievable utilizing baghouse technology. Point source lead emission rates specified in the proposed rule are only included as criteria requiring provisions such as submitting a Compliance Plan, determining source testing schedules, and applicability for the ambient air monitoring exemption. A facility-specific point source lead emission rate may be required only if a facility triggers the need to implement a control measure of a Compliance Plan that necessitates the need to have a facility-specific point source emission rate in order to attain the ambient air lead concentration limits of subdivision (d).

19. Comment: We are concerned that the uncertainty regarding a point source emission rate limit will delay construction and startup of our proposed new baghouse and melt shop evacuation upgrades.

Response: PR 1420.2 no longer requires a base requirement for a point source emission rate limit. See Response to Comment #18 above**.**

20. Comment: We recommend that the SCAQMD consider foregoing a mass lead emissions rate for facilities that comply with all other air quality measures required by PR 1420.2. If a mass lead emissions rate is required by PR 1420.2, it should be facility and industry specific. Otherwise, the final rule could render larger facilities unviable.

Response: The mass lead emission rate has been replaced with a control efficiency requirement. See Response to Comment #18 above.

21. Comment: Given the process differences between steel mini-mills and lead recyclers from which the PR 1420.2 emission limit was derived, as well as the many process differences between the 15 facilities subject to PR 1420.2, it is fundamentally unfair to apply the same, non-health effects derived emission rate on all of these facilities. For steel mini-mill operations, we propose a facility-wide mass lead emissions limit of 0.313 lb/hr. This rate is based on the estimated lead emissions from (our) new baghouse.

Further, in order to capture the variability between the different processes of the 15 potentially subject facilities, we propose that the rule require that affected facilities submit a Compliance Plan to the SCAQMD. The Compliance Plan shall include a proposal for a facility-wide point source emission limit, listing equipment subject to the limit, the expected emissions, and the maximum ambient concentration impact from the proposed emission limit based on dispersion modeling approved by the Executive Officer. Upon approval by the Executive Officer, the limit will be incorporated into the facility permit(s).

Response: See Response to Comment #18 above.

22. Comment: To meet an emission rate limit of 0.023 lb/hr, our facility would be required to reduce lead emissions from a planned new state of the art baghouse and melt shop evacuation system by over 92%. We are exploring the addition of High Efficiency Particulate Air (HEPA) filtration or a wet electrostatic precipitator (WESP). However, based on discussions with filtration and WESP vendors they could not guarantee a 92% reduction of lead emissions from our planned upgrade project. Also, due to potentially very high particle loading on HEPA filter media and an exponential rise in pressure drop across filters we estimate that filters would need to be replaced every 10 days. Additionally, HEPA filtration has not been used as a post-baghouse control in the steel industry. Even if technically feasible both HEPA and WESP control technologies would be cost prohibitive. The capital cost for a HEPA filtration system would be roughly $8 to $12 million in addition to approximately $6.8 million per year in operating cost. Further, a WESP would cost as much as $165 million (this cost exceeds the purchase cost of the entire steel mill). Therefore, we believe a facility

specific emissions limit determined by the affected facility and SCAQMD permitting staff following submittal of a Compliance Plan would be more appropriate.

Response: An emission rate limit of 0.023 lb/hr is not a requirement in the proposed rule, and PR 1420.2 no longer requires a mass lead emission rate. See Response to Comment #18 above. The emission rate limit in the proposed rule has been replaced by a 99% control efficiency measuring inlet versus outlet at the lead control device, or an outlet mass lead emissions rate of less than 0.00030 lbs/hr. This level of particulate control is readily achievable utilizing baghouse technology and does not specifically require HEPA or WESP control technologies as the only options to satisfy the base requirements of the proposed rule. The cost estimates for such equipment is included in the Socioeconomic Assessment for PR 1420.2.

23. Comment: We are concerned that PR 1420.2 would require control devices be installed on all lead point sources, even low-lead emitting point sources at a metal melting facility, including natural gas-fired water heaters and space heaters. Lead concentrations in the uncontrolled stacks at our facility are already below controlled emission sources at other facilities, and it would be infeasible to install emission controls to reduce emissions by 99.97% as proposed in the PR 1420.2 language. Therefore, we recommend that SCAQMD include the following exemption:

Exempt Process Source - is any combustion source fired on natural gas only in which metal melting does not take place or source where moisture content exceeds 10% by volume in the exhaust gas. Exempt process sources include but are not limited to reheat furnaces, dryers, and ladle heaters. These sources are not subject to the requirements of lead emission controls.

Response: The proposed rule has been modified to address the concern presented by the commenter. Any lead point source that has an uncontrolled emission rate of 0.005 pounds per hour or less, such as natural gas-fired water heaters and space heaters will be exempt from the requirements of subdivision (f) of this rule provided that a source test pursuant to subdivision (j) is conducted for the lead point source at least once every 24 months.

24. Comment: The PR 1420.2 draft language appears to require that baghouse bags meet a 99.97% control efficiency. This is more stringent than is required by Rule 1420.1. Therefore, we recommend requirements similar to PR 1420.1 as follows:

- Standards for Emission Control Devices- For any emission control device that uses filter media other than a filter bag(s), including, but not limited to, HEP A and cartridge-type filters, the filter(s) used shall be

rated by the manufacturer to achieve a minimum of 99.97% capture efficiency for 0.3 micron particles.

- Maintenance: "Conduct maintenance in negative air enclosure vented to a negative air machine fitted with filters rated at 99.97% capture efficiency for 0.3 micron particles."

Response: The recommended language has been incorporated into the proposed rule.

25. Comment: We cannot move forward on the upgrade project before PR 1420.2 is finalized, however, we expect that our baghouse upgrade project will be completed two years from adoption of PR 1420.2. Further, we anticipate that the total enclosure for the facility will be completed three months after completion of the baghouse upgrade project. Also, if secondary controls (e.g., HEPA filtration) are required for the baghouse and the secondary controls are feasible, we anticipate that these controls could be installed one year from completion of the baghouse upgrade project.

Response: SCAQMD staff has acknowledged the logistical constraints that the previous version of PR 1420.2 presented to your facility's baghouse project. Through multiple working group meetings and input from stakeholders, PR 1420.2 has been significantly revised resulting in not only a modification to the overall structure of the rule, but also the omission of specific provisions, such as base requirements for additional controls. Additionally, compliance deadlines for construction of total enclosures with negative air have been modified to provide schedules that would allow facilities to comply with the new deadlines based on information to SCAQMD staff.

26. Comment: The District should be aware that to properly conduct daily sampling for a 24-hour period that two (2) sampling units would be required. Typical daily sampling involves recovering and charging one sampler while another sampler is operating. The use of a single sampler for daily sampling would result in not collecting a 24-hr for any sampling day as a minimum 15 minutes would be needed to allocate for the removal and charging of the sampler. Therefore, a second sampler should be included in the estimated monitoring cost (e)(4).

Response: The sample collection methodology in Title 40, CFR 50 Appendix B - *Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)* provides sufficient flexibility to allow for removal of filter media and charging of the sampler during the 24-hour sampling period. Sampling run time may be no less than 23 hours and no longer than 25 hours and thus can be done with one sampling unit. Nevertheless, regarding the cost analysis for facilities anticipated to conduct daily sampling, SCAQMD staff included costs for a second sampler at each monitor location required by the proposed rule.

27. Comment: Please clarify that the "one miss" allowed over a 30 day consecutive period refers to the facility as a whole or is to the specific sampling location. If it is applied to the entire facility, 1 miss in 30 sampling events (3 samplers x 10 sampling days) would require a 96.7% success rate in sampling. If daily sampling is being required, then the required success rate increases to 98.9% (3 samplers x 30 days).

Upon researching recent sampling ambient events conducted by the District at Exide from January 1 to September 30, 2014 (from District website regarding Exide ambient program) a total of 687 samples were attempted with 32 events labeled as "no sample". This correlates to a 95% success rate. Therefore, some accommodations should be allocated to the additional sampling events for daily sampling (e)(6)(B).

Response: Each monitor is allowed one miss over a 30-day consecutive period. It is not applied to the facility as a whole. Language has been included in the proposed rule for clarification.

28. Comment: The draft rule requires that samples be submitted within three days. This condition is subject to the whim of the laboratories accepting the samples. Currently the two certified labs are accepting samples on Saturday. If the lab decides to close on Saturdays, or for long weekends, the three day criteria could be difficult or impossible to meet. Since the samples are under chain of custody by a District approved firm, we believe the three day criteria should not be specified. The timing of the reporting of the results would not be effected. (e)(7)

Response: The three day sample submittal schedule is the same as required in Rule 1420.1. Facilities subject to Rule 1420.1 have been able to comply with the proposed requirement despite holidays and long weekends.

29. Comment: Regarding paragraph (e)(7), – Should this refer to "spilt" samples? What would be a "duplicate" sample?

Response: The proposed rule intended to mean "duplicate" samples to mean "split" samples, therefore, paragraph (e)(7) has been modified to say, "Split samples shall be made available and submitted to the District upon request by the Executive Officer."

30. Comment: Under what conditions would a sampling period other than "midnight to midnight" be approved? Cost? Convenience? (e)(10)

Response: It must be demonstrated that the alternative schedule is adequate to routinely collect valid 24-hour samples and is conducted using the sampling methods referenced in paragraph (e)(8) of the proposed rule. See Response to

Comment # 15.

31. Comment: The wording in the rule is unclear how long the back-up power should be able to last. The rule language is identical to that found in Rule 1420.1, which has been interpreted by the SCAQMD to be 24 hrs. If the Rule intent is to have the back-up power for a more limited period (e.g. 3 hrs) then it should be made clear. Otherwise, this provision is subject to interpretation and could require back-up generators to be installed at each location. Also, please note, most power losses that we have seen are the results of circuit overloads or "electrical shorts" and not facility "power outages" which are less common. (e)(12)

Response: While most power outages or losses are for a more limited period, the back-up power supply must be able to supply power to the monitor to ensure that a valid 24-hour sample can be collected.

32. Comment: The annual cost shown for sampling every three days does not include labor, maintenance and reporting. This would be estimated to be about $50,000 to $60,000 annually with daily sampling maybe an extra $80,000 to $100,000 more. Additionally, the daily sampling premium does not include the procurement of three (3) additional samplers.

Response: See Response to Comment #12 and #26.

33. Comment: Given that approval of an emissions control system or an emission collection system does not require written approval we request the SCAQMD staff clarify that the approval would not include oral conditions.

Response: PR 1420.2 has been modified to require that approvals by the Executive Officer shall be shall be done in writing.

TOTAL ENCLOSURES

34. Comment: We believe that we can maintain a negative pressure on our openings consistent with the requirements of PR 1420.2. However, we recommend that the negative pressure requirements of PR 1420.2 only be applicable during operation of the furnace and maintenance. Limiting the negative pressure requirements to operation and maintenance periods will avoid maintaining negative pressure when no fugitive emissions are present.

Response: The SCAQMD staff believes that fugitive lead emissions can be generated inside a total enclosure even during periods where the furnace is not being operated or maintained. Process fugitives and other forms of lead-containing materials that can generate fugitive lead-dust can accumulate on surfaces within the total enclosure. When the furnace is not in operation, the decrease in negative pressure for the total enclosure can potentially

allow for fugitive emissions of lead outside through openings or weather conditions such as high wind events.

35. Comment: We are concerned that requiring a total enclosure forces employees to work inside emissions control equipment, significantly increasing their exposure to toxic substances. In addition, a total building enclosure can increase heat stress to intolerable levels that may result in safety hazards by reducing visibility. Further, we believe that it is bad public policy to endanger one group of citizens (workers vs. public beyond fenceline) in order to protect another, especially when SCAQMD has the means to protect both. Therefore, we strongly recommend that local exhaust ventilation be substituted for the proposed total enclosure requirement with appropriate monitoring to ensure air quality standards are met.

Response: The proposed rule is not designed to endanger any person(s). Total enclosures under negative air have been utilized in similar operations (lead-acid battery recycling facilities) providing improved fugitive emission control while not jeopardizing the health of facility employees. PR 1420.2 has added language in subdivision (g) to require total enclosures to be designed in a manner that does not conflict with requirements set forth by the Occupational Safety & Health Administration regarding worker safety.

36. Comment: Require enclosure and total enclosure requirements for material handling areas only if the material handled meets the "lead containing material" definition proposed above.

Response: Regarding total enclosure requirements for material handling areas, PR 1420.2 has been modified from requiring total enclosures of furnace, refining, casting, lead oxide production areas, and materials storage and handling areas, to only require total enclosures of furnace, casting, refining, lead oxide production and pasting areas.

37. Comment: We request that the SCAQMD staff provide additional clarification of areas that do not require enclosures. For example, the rule states that areas where raw unprocessed lead-containing materials are stored will not be subject to enclosures. However, we would like clarification that within this exclusion are small soldering operations (processing less than 30 lbs/day of lead), formation, water treatment and lead oxide truck unloading areas.

Response: The proposed rule has been revised to specify which areas require enclosures. These areas are furnace, refining, and casting areas as well as lead oxide production and pasting areas. Thus, the areas specified by the commenter would not be subject to the general requirements for total enclosures unless the specified areas occurred in the furnace, casting, refining, lead oxide production and/or pasting areas.

38. Comment: We have done preliminary ambient monitoring at 4 "fenceline" locations and the results indicate we will have no issues meeting the 0.05 ug/m^3 objective. Upon proof with "official" data, will there still be requirements to install more enclosures? We currently have all lead processing areas in ventilated total enclosures but there are other portions of the facility that are not totally enclosed. For example, we unload lead oxide trucks from our roadway that runs through the perimeter of the facility, which is not totally enclosed. Our ambient monitoring results indicate the unloading process is not contributing any fugitive lead emissions. Will we possibly be required to enclose this area somehow?

Response: See Response to Comment # 37.

39. Comment: Section (g)(3)(B) accelerates the deadline by which we must complete our meltshop/baghouse project. Specifically, this section would require the total enclosure with negative air to be installed and operational within two years after approval of a HRA. The total enclosure with negative air cannot be completed until the installation of the new baghouse and decommissioning of the old baghouse as footprint of the total enclosure will overlap the footprint of the old baghouse.

Moreover, in a project of this size, it would be imprudent not to anticipate the schedule to slip over the course of construction and startup. Although, Section (g)(3)(C) would allow for an extension based on weather-related factors other potential causes of delay may not be so easily identified and quantified. For example, the availability of contractors and subcontractors could impact an already tight schedule.

We anticipate that a directive to prepare a risk reduction plan will accompany the imminent approval of our HRA. However, the SCAQMD has given us no assurance that it will approve a risk reduction plan built around the meltshop/baghouse project as currently designed. We see no reason why the rule requires a second enforceable deadline for completion of the meltshop/baghouse, but if one is included, at a minimum the time should be calculated from approval of the risk reduction plan rather than the HRA.

Response: SCAQMD staff revised paragraph (g)(3)(B) of PR 1420.2 to require the total enclosure to be constructed no later than two years after approval of the HRA specified in clause (g)(3)(B)(i), or by January 1, 2018, whichever date is later. Based on information given to the SCAQMD staff by the commenter, the modified compliance deadline provides sufficient time for completion of the total enclosure with negative air. PR 1420.2 also allow facilities to receive approval for an extension to the deadline due to reasons beyond the facility's control, if the facility can demonstrate that it timely filed all complete permit applications.

40. Comment: We have serious concerns regarding the monitoring requirements set forth in Appendix 1 of PR 1420.2. Primarily, it is not clear that any monitoring gauge exists that can withstand the extremely high ambient air temperature of a steel mill melt shop. Our own experience using magnahelic gauges for other monitoring purposes suggests that the gauges routinely fail when exposed to the harsh meltshop environment. Even if a gauge exists that can endure the temperatures of the meltshop, other requirements of Appendix 1 are problematic. For example, Appendix 1 does not include an averaging time for the differential pressure monitoring data and without an averaging time, one moment of positive pressure (due to a transient weather event or temporary obstruction of a monitor) could lead to violation of the rule. Therefore, if sustainable monitoring gauges exist, some type of averaging period should be incorporated into the rule.

Response: Differential pressure monitors of the proposed rule are not required to be placed directly on the furnace or other equipment that have extremely high temperature zones. Monitors are to be placed at the three separate wall locations specified in Appendix 1. Based on experience with pressure monitors at other facilities that have high ambient indoor temperatures, placement of these monitors on the subject walls have not posed problems resulting in malfunction due to high heat. Additionally the transducer for the differential pressure monitor does not need to be directly subjected to a high temperature environment. The monitor can be placed remotely via lines to a hole or tap where the pressure is actually measured. PR 1420.2 provides the owner or operator to submit an alternative to any monitoring method or procedure for approval if the facility can demonstrate that the alternative method or procedure is equal to or more effective than the methods prescribed in Appendix 1.

Regarding, averaging periods, the SCAQMD staff has revised Appendix 1 to require 15-minute averaging periods for the differential pressure monitoring gauges, which is consistent with the federal NESHAP for secondary lead smelting.

HOUSEKEEPING

41. Comment: Our facility could not sustain its operations if limited to 5 mph throughout the entire site. A reduced speed limit of 5 mph speed limit during operations would result in over $50 million of lost revenue annually. Also, it is unclear how a lowered facility speed limit would achieve the objective of PR 1420.2 given that a majority of lead containing material at the facility is concentrated in a very specific area, in the melt shop and baghouse. Therefore, we do not support a facility wide speed limit of 5 mph.

Response: The speed limit is included in the proposed rule to minimize fugitive lead dust that has been entrained in roadways surrounding the facility. The proposal has been revised to require a 5 mph speed limit within 75 feet of a total enclosures and 15 mph beyond.

42. Comment: For facilities spread out over a substantial land area, the proposed 5 mph speed limit could substantially hamper production while providing negligible air quality benefits. Therefore, we recommend that any required speed limit be set higher than 5 mph or be redacted from the proposed rule for facilities that are spread out over a substantial land area. A single blanket speed limit may have vastly different impacts on different facilities and could result in a de facto bias against larger facilities.

Response: See Response to Comment #41

43. Comment: It is not practical for our facility to sustain its operations if limited to 5 mph throughout the entire site. Moving scrap to the EAF with a 5 mph speed limit would result in almost 90,000 tons of lost capacity annually, or over $50M in lost revenue. Further, it is unclear to us how a lower facility-wide speed limit would achieve the objectives of PR 1420.2 given that the majority of lead containing material and source of lead emissions at the site are concentrated in a very specific area, in the melt shop and baghouse. Also, based on U.S. EPA AP-42 entrained road dust emission calculations a lower speed limit will not reduce emissions. Therefore, we cannot support a facility-wide speed limit of 5 mph and do not believe such a speed limit would be an effective way to achieve the objectives of PR1420.2.

Response: See Response to Comment # 41

44. Comment: We request that SCAQMD staff clarify that the vacuum sweeping requirements set-forth in Section (h)(7) of PR 1420.2 are not intended to require vacuum sweeping of dedicated pedestrian walkways such as a curbed walkway along an administration building, or walkways that traverse the facility. Given the physical configuration (K-rails) of these dedicated walkways, it is not feasible to vacuum sweep these walkways.

Response: SCAQMD staff has revised paragraph (h)(7) to relieve facilities from having to vacuum sweep dedicated walkways with a mobile vacuum sweeper. Instead facilities will be allowed to sweep these confined and narrow walkways smaller less cumbersome and affordable sweepers, such as, a handheld vacuum sweeper, and similar to Rule 1420, at a frequency of once per week rather than once per operating shift.

45. Comment: The frequency that soil stabilizers are applied is determined by use, exposure, and other factors. Therefore, the manufacturer's frequency recommendation is not always the most appropriate. As a result, we

recommend clarification of the rule that allows for frequency recommendation by "vendors" and "installers," since these groups are generally most familiar with both the stabilizer properties as well as the specific application environment.

Response: SCAQMD staff revised paragraph (h)(3) to allow for an alternative frequency of applying stabilization with dust suppressants based on recommendations by the vendor or installer if the facility can provide information to the Executive Officer that the alternative frequency is more appropriate for the specific application at the facility. Factors considered during approval of the alternative frequency will include the type of use for the dust suppressant, the physical properties of the lead that the dust suppressant is being applied to, exposure of the dust suppressant to weather, and adjacent uses.

SOURCE TESTS

46. Comment: During the April 7, 2015 workshop, the SCAQMD staff provided rule language for the use of existing source testing in lieu of performing tests within the first year of the rule as long as the tests were performed after January 1, 2014. However, our new baghouse source test was performed in July 2013 (within the 120 day requirement). Would it be possible for this test to be accepted along with the others, as the "initial source test"?

Response: The proposed rule retains the January 1, 2014 date requirement. It would not be possible to use a test conducted earlier than January 1, 2014 as an initial source test. The rule requires source testing at least once every two years and a source test prior to January 1, 2014 would likely have been conducted more than two years ago.

47. Comment: Does only the initial source test used to demonstrate facility wide emissions need to be done in triplicate? Will subsequent periodic emission tests be done using a single run, or will the annual source test require triplicate tests be requires as implied in (f)(4). Shouldn't triplicate tests be required under section (j)(10) to show lead emissions as required by (f)(4) and (m)(1)?

Response: Initial and subsequent periodic emission tests shall be shall be determined based on the average of triplicate samples pursuant to paragraph (f)(4). Subparagraph (j)(10)(B) requires compliance with subdivision (f) including the triplicate and averaging provisions of paragraph (f)(4).

RECORDKEEPING

48. Comment: Our facility has no way of calculating the amount of lead in the scrap it receives; instead we analyze lead in the emissions and in the finished metal and use a formula to determine the amount of lead melted. Therefore, we

recommend adding a provision that allows for an "other approved method" of reporting the amount of lead material processed.

Response: The SCAQMD staff has added a provision to the rule allowing an "other approved method," intended to provides alternative methods for calculating the amount of lead material processed.

EXEMPTIONS

49. Comment: We recommend that SCAQMD set a de-minimis or exempt level to define a lead point source that would require control or source testing under PR1420.2.

Response: See Response to Comment # 23.

50. Comment: We recommend that the SCAQMD restrict the housekeeping and enclosure requirements of PR 1420.2 to areas where lead containing materials are present. Lead containing materials should be defined as any solid material containing lead with a lead content equal to or greater than 320 mg/kg (ppm) as measured by ICP/MS (EPA 6020) for lead that is in contact with ambient air and has the potential to become airborne.

Response: See Response to Comment #36.

51. Comment: We look forward to meaningful, substantive exploration of many specific issues. These include the need for clearly described and economically feasible off-ramps by which unnecessary and expensive compliance activities can be avoided; avoidance of unnecessarily alarming and disruptive public notices of occasional exceedances; and the need for explicit steps to be taken in the event that no-off ramp is applicable and exceeedances of some sort arise.

Response: The proposed rule includes off-ramps for facilities that can demonstrate low ambient air lead concentrations, low point source emissions and dispersion modeling that indicate low expected ambient concentrations. A provision for a Compliance Plan is included in the rule to implement further measures when exceedances arise. Finally, there are no public notification requirements included in the proposed rule.

52. Comment: PR 1420.2 would relieve facilities from the proposed monitoring requirements if the facility can demonstrate an ambient air lead concentration limit for lead below 0.050 $\mu g/m^3$ based on one year of ambient air monitoring. We recommend that the ambient air monitoring period be reduced to three months.

Response: SCAQMD believes that a full year monitoring ambient lead concentrations is necessary to ensure that, under normal circumstances, no further ambient exceedances would be expected indefinitely. PR 1420.2 has been revised to increase the threshold for the monitoring off ramp from 0.050 to 0.070 $\mu g/m^3$. A compliance time-frame of three months may preclude changes in weather patterns (e.g. Santa Ana winds, winter storms, etc.) that could impact ambient air lead concentrations. Varying levels of lead processing operations conducted at the facility throughout the year could also impact fluctuations of ambient air lead concentrations resulting from the facility.

APPENDIX 2

53. Comment: Staff clarified in the Working Group Meeting that our facility is not going to be required to conduct smoke tests in our new baghouse based on the safety provision in this section, we would appreciate staff's confirmation.

Response: The commenter raised a valid concern given the configuration and operating conditions of some control devices. For example, at the facility operated by the commenter the baghouse operates under intense heat conditions that could pose direct safety concerns, therefore, paragraph (f)(5) states "…a periodic smoke test shall be conducted, unless performing such test presents an unreasonable risk to safety…" An example of such unreasonable risk to safety includes having to conduct a smoke test at collection sites that would be extremely dangerous for somebody to work in that collection zone, or would be in violation with OSHA requirement for worker safety.

OTHER

54. Comment: We do not believe that the current rule schedule allows for meaningful input to SCAQMD staff, adequate time for you to complete necessary work prior to formal proposal or Board consideration, or adequate time for the consideration of and/or action on any formal proposal.

Response: The SCAQMD staff respectfully disagrees and believes there has been meaningful input and sufficient time. The staff has worked through an extensive public process for development of this rule, including 6 working group meetings and a public workshop. Based on input from stakeholders, several iterations of the proposed rule have been drafted which have resulted in modifying not only the overall structure of the rule, but also specific provisions that reduced cost impacts. Furthermore, sufficient time has been allocated to receive and address comments from public workshops and meetings. The SCAQMD Governing Board will hear the proposed rule, at which time evidence will be taken and all interested persons will be heard by the SCAQMD Board. At the conclusion of the public hearing, the SCAQMD Board may make other amendments to the proposed rule which are justified by the evidence presented, or may decline to adopt it.

55. Comment: Is the reference to an OEHHA analysis at page 1-3 to the May 14, 2009 "Revised California Human Health Screening Level for Lead (Review Draft)? If not, what is the reference?

Response: The reference to the OEHHA analysis is from U.S. EPA's Policy Assessment for the Review of the Lead NAAQS, May 2014, and is included in the "References" section of this staff report.

56. Comment: What information has SCAQMD obtained from CARB or other authorities about plans to address lead emissions from aircraft or otherwise associated with airports? Can you share it with us?

Response: Data on lead emissions from airports is currently being collected and reviewed by the U.S. EPA. In the April 28, 2015 Federal Register, the U.S. EPA issued an "Advanced Notice of Proposed Rulemaking on Lead Emissions for Piston-Engine Aircraft Using Leaded Aviation Gasoline."

57. Comment: With regard to the information on "Affected Sources" appearing at pp. 1-9 and 1-10, do you have a spreadsheet or other document that identifies the emissions attributed to each of the 14 facilities and the source of that information (e.g., if from the SCAQMD permitting data base, which permits?) Can you share it with us?

Response: Table 1-5 in Chapter 1 has been included in this report and list reported emissions by each facility represented by NAICS code.

58. Comment: Which facility is referred to on page 2-1 as being the basis for the 100 ton threshold?

Response: A minimum process limit of 100 tons of lead melted a year was set as the threshold for rule applicability based on data showing that Gerdau in Rancho Cucamonga (iron and steel mini-mill) melted a little over 100 tons per year and had high ambient air lead concentrations at the fence line.

59. Comment: Has SCAQMD staff prepared a critique of, or received advice from any outside expert, regarding the endorsement by the EPA CASAC Lead Review Panel of EPA's conclusion that "there is appreciable uncertainty associated with drawing conclusions regarding whether there would be reductions in blood lead levels from alternative levels as compared to the level of the current standard" [Consensus Response to Charge Questions on EPA's Policy Assessment for the Review of the Lead National Ambient Air Quality Standards (External Review Draft—January 2013), transmitted to EPA on June 4, 2013, at p. 6] and that Panel's independent conclusion that "the extent to which the blood PB levels observed in children are linked to ambient air lead levels below the current standard (as opposed to other

sources of PB in the environment) has not been established" [Id. at pp. 7-8]? If so, could you provide us with copies of any such critiques or advice?

Response: Please refer to Chapter 1, Section "Justification for Lowering the Ambient Air to 0.100 µg/m^3" for the detailed discussion.

60. Comment: SCAQMD staff has no independent support to dispute – that "current air" emissions are rarely, if ever, a significant source of children's or anyone else in the community's lead exposures. And we believe the data demonstrates that this certainly is the case as to emissions from battery manufacturers.

Response: Please refer to Chapter 1, Section "Justification for Lowering the Ambient Air to 0.100 µg/m^3" for a detailed discussion regarding children and community lead exposures. Also see Response to Comment #1 regarding high ambient air lead concentrations from a lead-acid battery manufacturer.

61. Comment: We think there is a better way for the Board and its staff to approach its continuing lead concerns. We know a lot about lead sources, about potential human health impacts, and about control mechanisms. We are prepared to share that expertise. We also are prepared to work with the District to assist in developing mechanisms to find and monitor true potential "hot spots." But putting the proposed rule on the agenda for September 4 will not allow us to develop those ideas with the staff.

Response: SCAQMD staff has received meaningful input from multiple stakeholders through the development of this rule (6 working group meetings, 1 public workshop). Although SCAQMD has received input from the commenter throughout the rule development process questioning the need and applicability of the rule, SCAQMD staff had only received input regarding rule modifications in the last month of this writing. Nonetheless, the SCAQMD staff has incorporated many of the suggestions from the commenter in the current version of the proposed rule.

62. Comment: We have been told that documents scheduled for release – such as the socioeconomic analysis, environmental assessment, and response to our previous comments from the May 14 Public Workshop—will help explain a rationale. But the timing of this release (August 5) adds to our concern. The already short period between the release date and the September 4 proposed public hearing falls in a month that is typically one of the most difficult of the year for government and private sector schedules due to vacations. This short period provides affected companies with little to no opportunity to evaluate the District's explanations, meet with District staff about real-world costs, explain why the monitoring provisions of a rule specifically designed to address the problem of fugitive lead emissions from secondary lead smelters are often illogical and irrelevant for the entirely

battery manufacturing industry, or address other issues raised by the back-up documentation or post-workshop changes to the draft rule.

Response: See Response to Comment #54 and #61. Staff is willing to meet with industry representatives to discuss these issues after release of the rule proposal.

63. Comment: The operations of the battery manufacturing facilities that would be covered by PR 1420.2 are very different from those of secondary smelters, such as Quemetco or Exide. Among other things, potential lead emissions from the battery manufacturing process are far lower than potential emissions from the breaking, smelting, and refining processes involved in secondary smelting.

Response: The original draft of PR 1420.2 was very similar to Rule 1420.1. However, PR 1420.2 has been significantly revised after much input from affected facilities, and establishes requirements more appropriate for this industry segment. PR 1420.2 is an update to Rule 1420 for this industry segment. PR 1420.2 is similar to Rule 1420 in terms of the regulatory structure and general requirements. However, PR 1420.2 includes more prescriptive requirements that have been proven effective at reducing fugitive lead emissions in light of the amended Pb NAAQS.

64. Comment: Why is SCAQMD is mandating that the facilities that it has categorized as "metal melting" should be required to demonstrate not only that the ambient air in their areas meets the federal National Ambient Air Quality Standard, but within three years will be 1/3 lower. BCI is aware of no scientific basis for this requirement. As best we can tell, the 0.10 $\mu g/m^3$ number has been proposed because it is what the operators of the Quemetco lead smelter told the SCAQMD staff that it can meet, and the staff concludes that a lower number is always better.

Response: See Response to Comment #12. Also please refer to Chapter 1, Section "Justification for Lowering the Ambient Air to 0.100 $\mu g/m^3$" for the detailed discussion.

65. Comment: Perhaps the District might consider slowing down the current regulatory rulemaking process in order to obtain both more scientific data and more input from industry on how to best achieve compliance without placing Southern California plants at a disadvantage with plants located in other parts of our country.

In light of that fact, and out of concern for the many jobs and families in my district, I sincerely ask that you reconsider your proposed regulatory change and adopt only those regulatory changes that will, in fact, provide real health benefits to my constituents, as demonstrated by hard scientific data, and also

limit any negative impacts on the lead battery facilities which may be impacted by the proposed regulation.

Response: See Response to Comment #12 and #60. Also, SCAQMD staff has worked with the lead-acid battery manufacturers in your district and have made further modifications to PR 1420.2 based on input received from the Battery Council International.

66. Comment: The ambient air concentration limits of subdivision (d) should be based on 1 exceedance of 0.150 $\mu g/m^3$ averaged over any 30 consecutive days beginning date of rule adoption, and 3 maximum annual exceedances of 0.100 $\mu g/m^3$ averaged over non-overlapping 30-day periods. This proposed revision reflects an effort to compromise between our view that the 0.100 standard is scientifically unsound and the staff's contrary view. It would have the regulation trigger automatic additional requirements upon a single exceedance of a standard tighter than the federal lead NAAQS (because it incorporates the 30-day measurement period) and also trigger the additional requirements upon repeated exceedances of the 0.100 standard, but still using less than the Federal 90 day rolling average measurement period.

Response: The SCAQMD staff appreciates the commenters effort to provide a compromise regarding the 0.100 $\mu g/m^3$ However, establishing the ambient lead limit based on a non-overlapping 30-day average over an annual period would allow the operator to only have one violation in a month, where for the remaining portion of the month there would be no limit and each exceedance during that period would not result in a violation. In addition, "restarting the clock annually" could potentially allow a facility to exceed for 60-days with no violation. The objective of the 0.100 $\mu g/m^3$ ambient concentration limit is to be more health protective. SCAQMD staff has added additional information in the Staff Report to substantiate the ambient concentration limit.

67. Comment: We also are aware – as we know is the SCAQMD staff – of another potentially relevant data set. It is ambient air lead monitoring data from a monitor adjacent to the largest lead-acid battery manufacturer in the District. That facility reports no fugitive emissions in the TRI data, but 11 to 16 pounds of lead emissions from its stacks (in compliance with its permits). And the monitor reveals no current exceedances of the federal National Ambient Air Quality ("NAAQS") standard of 0.15 $\mu g/m^3$, even when measured on a monthly basis (rather than the quarterly basis embodied in the NAAQS itself). We have heard anecdotally that SCAQMD staff is concerned about a single 2007 reading from that monitor, but are confident that if they pursue any inquiry about it they will find that it was an aberration that did not indicate any ongoing fugitive dust issue.

Response: Contrary to the commenter's understanding of the ambient air monitored data set at Trojan Battery, multiple high readings were exhibited over multiple periods between 2005 and 2011. Refer to "Trojan Battery (Source-oriented Monitor) in Chapter 1 of this Staff Report for further details.

68. Comment: SCAQMD staff estimates the annual cost of just the monitoring required by PR 1420.2 at $96,071 to $351,982. And the proposed rule would require hundreds of thousands of dollars more in expenditures at facilities near which ambient monitors revealed lead levels one-third lower than the federally-established National Ambient Air Quality Standard

Response: See Response to Comment #12. Additionally, regarding exceedance with 0.100 µg/m^3 triggering implementation of a Compliance Plan, PR 1420.2 has been modified to trigger implementation of a Compliance Plan after either an exceedance with 0.150 µg/m^3 averaged over any 30 consecutive days, or 3 exceedances with 0.100 µg/m^3 after January 1, 2018. The facility would only be required to implement those controls in the Compliance Plan necessary to attain the applicable standard in subdivision (d). Compliance Plan requirements allow flexibility to improve efficacy of existing controls (more frequent bag cleanings, increase in ventilation), before implementing installation of costly new equipment.

69. Comment: My understanding is that the District is considering imposing additional, expensive monitoring obligations on industrial facilities that use lead in their products, such as battery manufacturers, despite that fact that there may be little reason to suspect those facilities of excessive emissions. I am told that the District has estimated the first-year cost of that monitoring to be as much as $352,000 per facility. In addition, I am told that the District is proposing to impose further, expensive reconstruction and operation obligations on facilities at levels one-third lower than the federally-established National Ambient Air Quality Standard for lead (and which are 94% lower than the current California standard set the Air Resources Board).

I do agree, however, that the District should have monitoring capabilities to make sure that facilities meet critical ambient air standards for lead and other pollutants. But it is also my understanding that after an extensive recent review, a federal government scientific advisory panel recommended that to assure protection of the most sensitive populations (young children) the appropriate lead air emission standard should in fact remain at the current standard of 0.15 micro-grams per cubic meter.

Response: It is correct that the United States Environmental Protection Agency (EPA) recently retained the current National Ambient Air Quality Standard (NAAQS) for lead of 0.15 µg/m^3. However, based on the scientific evidence, it is SCAQMD's position that there is evidence of health impacts

associated with exposures to ambient air concentrations of lead below the NAAQS. An example that SCAQMD staff has referenced in order to support this position includes EPA's own *Policy Assessment for the Review of the Lead NAAQS* (May 2014). The assessment states that there is no existing safe threshold for blood in lead and shows that there is a range of IQ loss resulting from exposures to less than the NAAQS level of 0.15 $\mu g/m^3$. Please refer to Chapter 1, Section "Justification for Lowering the Ambient Air to 0.100 $\mu g/m^3$" for a further detailed discussion**.** The SCAQMD staff believes that the proposed lower limit will further reduce lead emissions and thus limit lead exposure and accumulation in communities nearby these facilities. Furthermore, the proposed limit has been demonstrated to be achievable by facilities that process much larger amounts of lead, namely large lead-acid battery recycling facilities, and is consistent with the limit adopted by the SCAQMD Governing Board for Rule 1420.1 – Emission Standards for Lead from Large Lead-acid Battery Recycling Facilities.

Regarding the cost of ambient air monitoring and sampling required by the proposed rule, SCAQMD staff continues to work with stakeholders through an extensive public process for development of this rule. Based on input from stakeholders including the battery manufacturing industry, modifications have been made to the monitoring requirements which significantly reduce the associated costs. The costs for ambient air lead monitoring were initially estimated to be $352,000 annually based on daily sampling at four fence line locations at the facility. The most recent draft of the proposed rule now requires sampling once every six days and at a reduced three locations, with an estimated cost of $62,000 - $72,000 for the first year, which includes monitoring 1 in 6 days, and daily sampling for the first 30 days during the commissioning of the monitors. In addition, the proposed rule contains a provision that provides an exemption for ambient lead monitoring if a facility can demonstrate that measured concentrations are below 0.070 $\mu g/m^3$ for all 30 consecutive day averages based on data for the first year of monitoring.

Regarding the proposed ambient air concentration limit, the SCAQMD staff has already adopted the more health protective ambient lead concentration limit for large lead-acid battery recycling facilities. Lead is a neurotoxin that has serious health effects, particularly for children. The ambient lead concentration limit of 0.100 $\mu g/m^3$ has been demonstrated achievable by facilities that process much larger amounts of lead, namely large lead-acid battery recycling facilities. PR 1420.2 aims to reduce lead emissions to the maximum extent feasible in order to further limit the exposure and amounts of lead accumulated in communities nearby these facilities

70. Comment: The proposed rule includes provisions allowing the Executive Officer to require a facility to relocate monitors or install additional monitors. This

provision should be removed because it is redundant. The number and placement of monitors is sufficiently detailed directly prior to this provision. If this provision is retained, a standard for when relocation may be required by the Executive Officer should also be included

Response: The provision referenced by the commenter refers to situations where existing monitors were not capturing the maximum ground level concentrations of lead, or a new source of lead emissions that was not previously identified or fully understood requires monitoring. In order to provide clarification for this provision, PR 1420.2 has been modified to provide detail and criteria for the justification to add or relocate monitors by the Executive Officer.

71. Comment: Please confirm and include a reference to the testing protocol that allows a 24-hour sample to be valid if the actual sampling period is 23 hours or more. Otherwise, there will be an additional burden of having to put two monitors at each sampling location. Additionally, please confirm that a daily sample can occur at other time periods besides midnight to midnight.

Response: PR 1420.2 now includes a definition for "VALID 24-HOUR SAMPLE" that confirms allowing samples that are no less than 23 hours or no more than 25 hours. Additionally, paragraph (e)(10) allows facilities to conduct 24-hour sampling on a schedule different than midnight-to-midnight if it is demonstrated and approved by the Executive Officer that the alternative schedule is adequate to routinely collect valid 24-hour samples and is conducted using the sampling methods referenced in paragraph (e)(8).

72. Comment: To avoid unnecessary costs, ambient sampling should be conducted less frequently than daily for facilities that exceed the ambient air lead concentrations in subdivision (d). We propose sampling once every three days or on an approved schedule.

Response: PR 1420.2 has been modified paragraph (e)(5) to require sampling once every three days as suggested by the commenter, however, based on the severity of the exceedance, some facilities may be required to sample daily.

73. Comment: The requirements for recording wind information are already included in the referenced Title 40, CFR 50 Appendix B. To maintain consistency, paragraph (e)(9) should refer to the EPA-approved method

Response: Title 40, CFR 50 Appendix B does not provide requirements for recording wind information. However, staff states in the Section "Ambient Air Monitoring and Sampling Requirements" found in Chapter 2 of this staff report, that approval criteria for wind direction and speed monitoring shall be based on guidelines provided in the "*SCAQMD Rule 403 Implementation Handbook – Chapter 6: On-Site Wind Monitoring Equipment*," or other

relevant EPA reference documents such as the "*Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV, Meteorological Measurements*."

74. Comment: Approval of individuals by the Executive Officer to conduct air quality monitoring is unnecessarily cumbersome. SCAQMD should just identify a reasonable training regime that it expects regulated entities to have use.

Response: See Response to Comment #16.

75. Comment: Mechanical ventilation testing using the procedures set forth in 29 CFR §1910.1025(e)(4) should be allowed as an alternative to smoke testing. Battery manufacturers already conduct mechanical ventilation testing to determine the efficiency of ventilation. Therefore, smoke testing is still necessary in the proposed rule.

Response: Although the referenced mechanical ventilation testing may verify whether ventilation equipment is providing a velocity or static pressure designed for the emission collection system, it does not take into consideration factors such as cross-draft conditions, correct placement/position of hoods, or other elements that would impact capture or collection of emissions from a furnace.

76. Comment: Metal melting operations at battery plants are continuous and openings (doors, windows, roll-ups, etc.) cannot be closed during operations. This provision should be removed for battery plants as other mechanisms, such as the use of heavy curtains over openings, minimize cross-draft conditions.

Response: Paragraph (g)(2) has been modified as suggested by the commenter and allows alternative methods to closing openings if the facility can demonstrate to the Executive Officer equivalent or more effective ways to minimize cross-draft conditions.

77. Comment: A total enclosure with negative air should only be required if the ambient lead limits in paragraph (d)(1), as modified by the commenter (see Comment #66), are exceeded.

Response: Requirements for a total enclosure with negative air are set forth in paragraph (g)(3) and require not only an exceedance with 0.120 $\mu g/m^3$ averaged over any 30 consecutive days, but also that a facility has a Health Risk Assessment approved by the Executive Officer that exceeds the action risk level of Rule 1402.

78. Comment: Housekeeping requirements should not be included for facilities where there is no evidence of a problem. Only facilities that have been required

to submit a Compliance Plan pursuant to subdivision (m) should be required to comply with the housekeeping provisions in the rule

Response: In 2013, lead wipe sampling conducted by SCAQMD staff at 4 lead-acid battery manufacturing facilities showed high concentrations of lead at building openings, roofs, and roof vents. Without baseline requirements for housekeeping, fugitive lead dust may significantly impact the ambient air lead concentrations. Facilities are currently subject to the housekeeping requirements of Rule 1420 which includes provisions for storage of lead dust-forming material, cleaning of surfaces that accumulate dust subject to vehicular or foot traffic, and handling procedures for lead or lead-containing waste. PR 1420.2 builds on the general requirements of Rule 1420 by enhancing existing provisions with additional measures proven effective to control fugitive lead dust. Many of the housekeeping provisions under PR 1420.2 are based on those under Rule 1420.1, with modifications to reduce the frequency or other modifications based on input from the Working Group.

79. Comment: The extension of 72-hour time period to repair total enclosures in paragraph (h)(2) is garbled. The extension should be granted if the request was made before the 72-hour period has expired

Response: Paragraph (h)(2) has been modified as suggested by the commenter.

80. Comment: Maintenance provisions in the rule should be limited to activities that, absent controls, could generate fugitive lead dust.

Response: **"**Construction or maintenance activity" is already defined in PR 1420.2 to be specified activities listed in paragraph (c)(3) that are conducted outside of a total enclosure with negative air that generate or have the potential to generate fugitive lead-dust.

81. Comment: As reflected in the Secondary Smelter NESHAPs, there are many situations where conducting maintenance within total enclosures is not feasible or is counterproductive. The important thing is to provide flexibility and allow a variety of maintenance options, each of which is designed to ensure that fugitive dust is minimized. Maintenance activities should be allowed outside of permanent or temporary enclosures if one or more dust control measures are performed.

Response: Paragraph (i)(1) has been modified to allow some flexibility by providing a menu of options including using either 1) a temporary total enclosure under negative air; 2) a partial enclosure using wet suppression or vacuum; or 3) wet suppression or vacuum alone, if a partial enclosure creates conditions posing physical constraints, limited accessibility, or unreasonable risks to safety.

82. Comment: The requirement to collect daily 24-hour samples because maintenance is occurring would impose unnecessary costs.

Response: PR 1420.2 has been modified to omit the referenced requirement.

83. Comment: Inspection and maintenance of fabric filters should not be required to take place within a total enclosure. Used fabric filters shall be placed in sealed plastic bags prior to removal from a baghouse.

Response: See Response to Comment #81.

84. Comment: Source testing every two years is costly. Source testing should be allowed once every 48 months if no significant increase in capacity or major process change has occurred and the previous source test indicated greater than 99% lead reductions and a total facility mass lead emissions rate of less than 0.020 pounds per hour.

Response: Based on SCAQMD staff knowledge and experience concerning air pollution control equipment, if control equipment is tested infrequently, long periods of time can elapse before degradation of control equipment or decreases to the efficacy of emission control. Based on this knowledge and experience, staff believes that allowing 24 months between source tests if the facility demonstrates a total facility mass lead emission rate of less than 0.020 pounds per hour is an adequate period.

85. Comment: Battery manufacturers should be allowed to assume that metal melted is 100% lead and not be required to record lead content.

Response: Staff believes that the recordkeeping requirements of subparagraph (k)(1)(A) allows this since lead ingots are near 100% lead (99.9% lead).

86. Comment: Reports requiring the results of individual 24-hour samples and 30-day rolling averages should be limited to each day that monitoring was conducted.

Response: The ambient air concentrations limits of PR 1420.2 apply to all rolling 30-day averages in the year, and not just to days where monitoring and sampling was conducted. Thus, reports require that facilities calculate a rolling 30-day average for every day in the reporting period.

87. Comment: The Compliance Plan should be required if there is any exceedance of the 0.150 $\mu g/m^3$ limit or three exceedances in a one year period of the 0.100 $\mu g/m^3$ limit. Additionally, a Compliance Plan would be required if two exceedances of 0.120 $\mu g/m^3$ occurred in a one year period.

Response: SCAQMD staff believes that submittal of a Compliance Plan is necessary as currently proposed based on ambient air concentration levels that approach 1 exceedance of an ambient limit in order establish measures that would be necessary in the event that the ambient limits are exceeded. However, subdivision (m) has been modified to require implementation of a Compliance Plan as follows:

Effective Date	Ambient Air Concentration of Lead, micrograms per cubic meter (µg/m^3), averaged over any 30 consecutive days	Total # of exceedances
Beginning January 1, 2017	0.150	1
Beginning January 1, 2018	0.100	3

88. Comment: The Compliance Plan contents of PR 1420.2 are too prescriptive.

Response: The Compliance Plan is only prescriptive in that it lists general elements that are to be considered/included by the facility. Facilities have the flexibility to develop facility specific controls for each element. Additionally, facilities do not have to implement all the control measures identified in the Compliance Plan, only those that are necessary to attain the applicable ambient air lead concentration limits of subdivision (d).

89. Comment: Air dispersion modeling showing that the ambient lead limits contained in paragraph (d)(1), as modified by the commenter (See Comment #66), should be sufficient when considering exemption from air monitoring. The proposed 0.050 µg/m^3 ambient concentration does not recognize the legitimacy of air dispersion modeling.

Response: It is difficult to quantify amounts and locations for facility fugitive lead emissions when conducting air dispersion modeling. In order to more accurately confirm with confidence that a facility would not exceed the ambient air concentration limits of the proposed rule, it is necessary to have both modeled data and actual measured ambient data.

90. Comment: An increase in processing throughput of five percent or more should not result in the revocation of the air monitoring relief plan. Emissions are not related to production at the time of a source test, and these two concepts should be decoupled. Production levels and emissions are unrelated—at

least within the battery industry— to compliance with stack test emissions. Moreover, battery manufacturers seek to grow their businesses and production levels. They should not be penalized for additional production, especially where production is not correlated with emissions.

Response: Paragraph (o)(1) of PR 1420.2 has been modified to replace language regarding the 5% operational increase and now says "any permit modification to equipment or processes that results in an increase in lead emissions that can be shown to cause an exceedance of the ambient air lead concentrations required by subdivision (d)…"

91. Comment: Alternative methods to ensure continuous negative pressure should be allowed including flow differential monitoring and those approved by the Executive Officer. We are comfortable meeting reasonable performance standards, but there should be flexibility on how that can be done. Many battery manufacturers operate interconnected buildings, and require larger areas devoted to combustion than in secondary smelters. As a result, other methods for ensuring and monitoring negative pressure within a total enclosure are more relevant and useful indicators that emissions are ventilated within the facility.

Response: PR 1420.2 provides that the owner or operator can submit an alternative to any monitoring method or procedure for approval if the facility can demonstrate that the alternative method or procedure is equal to or more effective than the methods prescribed in Appendix 1.

92. Comment: The District is proposing an ambient lead concentration limit of 0.100 $\mu g/m^3$ averaged over 30 consecutive days based on policy decisions that it is more protective of human health than the choices made by EPA in proposing to retain an ambient concentration limit of 0.15 $\mu g/m^3$. However, we believe that the policy decisions need to be re-addressed because the fundamental basis for these decisions is the 2008 Lead NAAQS Review (Page 1-5 of the Draft Staff Report) and ignores information that is more recent. Specifically, more recent information provided by the U.S. EPA during the 2014 Lead NAAQS Review reinforces that there is no reason to change the 1:7 air to blood level ratio and references additional studies that support an air to blood ratio closer of 1:7. For example, on page 299 of the recently published Federal Notice for proposed rule pertaining to the Lead NAAQS dated January 5, 2015, the U.S. EPA cites a study that dates from the end of or after the phase-out of leaded gasoline usage and reports on children living near a lead smelter, which is more representative of conditions in the United States today (Effect of Smelter Emission Reductions on Children's Blood Lead Levels, Hilts, S.R., 2003). The study reports an air to-blood ratio of 1:6, however, a U.S. EPA analysis of the air and blood data from the study for certain periods yields a ratio of 1:7. Therefore, SCAQMD should base

the ambient concentration limit on the most recent information provided by U.S. EPA's 2014 Lead NAAQS Review that supports a 1:7 air to blood ratio.

Response: SCAQMD staff has reviewed the information from the U.S. EPA's recent 2014 Lead NAAQS Review and is aware of the additional studies referenced by the commenter located on page 299 of the recent proposed rulemaking to retain the Lead NAAQS dated January 5, 2015[1]. However, upon a complete review of the recently proposed Lead NAAQS, the reader will discover that on page 300 of the Federal Notice, the U.S. EPA states that these new studies do not appreciably alter the scientific conclusions reached in the 2008 Lead NAAQS Review "regarding relationships between Pb in ambient air and Pb in children's blood" or the range of ratios of 1:5 to 1:10. Although the U.S. EPA has reviewed additional studies and conducted a more focused analysis of these studies since the previous NAAQS review in 2008, it does not consider the air to blood ratio range of 1:5 to 1:10 irrelevant and instead the U.S. EPA reinforces this range in its most recent conclusions regarding blood lead and air lead relationships. Further, on page 300 of the Federal Notice the U.S. EPA states that the "currently available evidence continues to indicate ratios relevant to the population of young children in the U.S. today…to be generally consistent with the approximate range of 1:5 to 1:10 given particular attention in the 2008 NAAQS decision…" Therefore, the basis for SCAQMD's policy decisions regarding the proposed ambient lead concentration limit of 0.100 $\mu g/m^3$ remains and reinforces the determination that a 1:10 air to blood ratio is more health protective.

93. Comment: Given the very low ambient limits proposed in the rule there is a need for flexibility, therefore, the trigger to submit a Compliance Plan should be based on a single exceedance of 0.150 $\mu g/m^3$ or two exceedances of 0.100 $\mu g/m^3$.

Response: The purpose of the Compliance Plan is to develop and establish control measures that would be ready for timely implementation in the event that the ambient limits of the proposed rule are exceeded. The SCAQMD staff believes that submitting a Compliance Plan after a single exceedance is more proactive and ensures these control measures are identified up front in the event of an exceedance. As a result, the SCAQMD staff disagrees that a Compliance Plan should be submitted upon two exceedances of 0.100 $\mu g/m^3$ as opposed to a single exceedance. Earlier submission of the Compliance Plan provides adequate time and review of the proposed measures for approval by the Executive Officer. Having these approved control measures established in an approved Compliance Plan will allow for immediate implementation of lead control measures in the event that exceedances of the proposed ambient air lead concentration limits occur.

[1] Proposed Rule Notice for 2014 Lead NAAQS available at: http://www.gpo.gov/fdsys/pkg/FR-2015-01-05/pdf/2014-30681.pdf

94. Comment: Given the very low ambient limits proposed in the rule, the trigger to implement a Compliance Plan should be based on a single exceedance of 0.150 µg/m^3 or three exceedances of 0.100 µg/m^3.

Response: SCAQMD staff has modified the rule language and the requirements for implementation of the Compliance Plan are those suggested by the commenter.

95. Comment: A future exceedance of the proposed ambient air lead concentration limits at a metal melting facility may not be related to the facility and could be the result of elevated ambient air lead background concentrations from nearby sources. Therefore, we recommend a relief clause if it is demonstrated that the exceedance cannot be attributed to the facility.

Response: Although data values from measurements conducted by SCAQMD non-source-oriented monitors show background concentrations well below the ambient air lead limits of PR 1420.2 (see Response to Comment #8), the SCAQMD staff is aware that there could be an incident where an ambient air monitor(s) required by the rule at a metal melting facility demonstrates elevated ambient air lead concentrations not attributed to the metal melting facility. Therefore, paragraph (d)(3) states that an exceedance of the ambient limits of the rule is based on monitor readings that measure lead concentrations ***resulting from the facility***. Additionally, paragraph (m)(10) states that the owner or operator shall implement one or more of the measures of the approved Compliance Plan "…if lead emissions discharged from the facility contribute to ambient air lead concentrations…" Further in (m)(10), it is stated in considering the measure(s) that the owner or operator shall implement that are necessary to attain the applicable ambient air lead concentration limit, the Executive Officer shall consider the cause, magnitude, and duration of the exceedance, as well as past exceedances, if applicable.

96. Comment: There should be a clear nexus between the Compliance Plan measures required to be implemented by a facility and the cause of an exceedance that triggers implementation of the measures. Further, the proposed rule gives too much power to the Executive Officer by allowing him or her to require a facility to implement additional measures from their Compliance Plan.

Response: The intent of subparagraph (m)(5)(A) of the rule is to prioritize lead emission reduction measures based on the most effective mechanism to reduce emissions from the source of the exceedance. To provide clarification, the SCAQMD staff has added language to the proposed rule stating that only those Compliance Plan measures that directly address emissions from the presumed source of the exceedance and are necessary to attain the ambient air concentration limit of the rule will be required for implementation.

97. Comment: Given the very low ambient air lead concentration limits proposed in PR 1420.2 the rule isn't flexible enough, facilities should get to choose how to comply with the limit; the AQMD should not dictate the type housekeeping measures that each facility must administer in order to comply with these limits.

Response: It is important to note that during the development of PR 1420.2, the SCAQMD staff worked with the Working Group discussing various provisions of PR 1420.2, particularly housekeeping provisions. Staff has made a number of revisions to reduce the frequency of certain housekeeping measures and allow different approaches to various other housekeeping measures, such as using chemical dust suppressants instead having to pave with concrete or asphalt facility grounds where fugitive lead dust can be generated. The housekeeping measures alone are not intended to attain compliance with the ambient air lead concentration limit; rather, their intent is to supplement the lead point source emission controls required by the proposed rule and ensure emissions levels below the ambient air lead concentration limit. Wipe samples at lead-acid battery manufacturing facilities have shown elevated levels of lead on surfaces outside of building enclosures (see Response to Comment #78) and emphasize the importance of housekeeping provisions to minimize fugitive lead dust. It is the SCAQMD staff's understanding, based on comments from a representative from the Battery Council International, that one of the primary concerns is the effect of PR 1420.2 on the national level of battery manufacturers, and not just to those located within the Basin. Based on interviewing facility operators in the Basin and through on-site surveys conducted by the SCAQMD staff at every metal melting facility subject to the proposed rule, it was determined that to some extent all of the proposed housekeeping measures are currently implemented at metal melting facilities. The significant variable in responses to the survey was the frequency at which these measures are implemented. For example, some facilities may conduct cleanings less frequently than other facilities or less frequently than the proposed rule requires. Therefore, SCAQMD staff has concluded that the proposed housekeeping measures are achievable and not overly burdensome, as they are widely implemented by the affected facilities, and will effectively minimize fugitive lead emissions based on experience at other lead emitting facilities.

98. Comment: The smoke test required by paragraph (f)(5) for lead point source controls is too resource intensive and redundant given that OSHA has a similar requirement that should be allowed in lieu of the smoke test required by PR 1420.2.

Response: Based on SCAQMD staff's experience, smoke tests are a relatively inexpensive and quick method (less than 5 minutes) that is used to determine whether emissions for a given process are being effectively captured by the

emission collection system. Although facilities conduct periodic ventilation checks pursuant to OSHA requirements for worker safety, these are mainly measurements to determine the velocity of the air flow at the hood face or within ducts to ensure that the installed systems are operating at the velocities designed for the system; they do not necessarily determine the directional flow of the emissions. As stated in the OSHA Technical Manual[2] regarding technical equipment for on-site measurements, "*ventilation smoke is a helpful complement to the thermoanemometer*," and "*will also help determine whether supply air turbulence near a hood may compromise the hood's effectiveness*." As recognized by OSHA, smoke tests are not the same as mechanical ventilation tests such as thermoanemometers, as smoke tests serve the purpose of determining whether cross draft conditions or other operations conducted by the facility are affecting the ability of the emission collection system or hood to effectively capture emissions, which is the main concern of SCAQMD staff and the reason for the smoke test provision.

99. Comment: The projected compliance costs reported in Table 5 of the Socioeconomic Report appears to be inaccurate. We request that the SCAQMD staff provide the input data used to estimate the compliance costs ultimately projected in Table 5 to all the affected facilities subject to PR 1420.2.

Response: The cost data of the PR 1420.2 Draft Socioeconomic Assessment Report was generated based on facility on-site surveys conducted by SCAQMD staff regarding what affected facilities are currently doing and what they are anticipated to do in order to comply with the proposed rule. Nevertheless, the SCAQMD staff will be conducting additional meetings with affected facilities in order to provide and re-confirm cost data presented in the Draft Socioeconomic Assessment Report.

100. Comment: Contiguous, undeveloped property that is owned by the facility that does not have any activity or operations conducted on it should not have to be paved as required by PR 1420.2.

Response: SCAQMD staff has modified the requirements of paragraph (h)(3) such that owners or operators are not required to pave with concrete or asphalt, or stabilize with dust suppressants undeveloped facility grounds where activities or operations are not conducted.

101. Comment: Our facility has landscaped areas along the perimeter of the property that are in front of the facility parking lot. Although some of the landscaping may be required under city permits for aesthetic purposes and to provide greenbelts, other landscaped areas within the parking lot area should not be

[2] OSHA Technical Manual (OTM), Section II – Chapter 3, Paragraph IV (Air Velocity Monitors/Indoor Air Quality (IAQ) Assessment Instrumentation, - available at https://www.osha.gov/dts/osta/otm/otm_ii/otm_ii_3.html#AirVelocityIAQMeters

required to be paved as they are located away from any lead-related operations.

Response: SCAQMD staff has modified the requirements of paragraph (h)(3) such that owners or operators are not required to pave with concrete or asphalt, or stabilize with dust suppressants landscaped areas located within and beyond facility parking lot(s) or perimeter landscaped areas.

102. Comment: The SCAQMD staff has justified regulating battery manufacturers based entirely on historical—not current—monitoring data at one facility from 2005-2007 by noting that those levels are higher than the current standard. But those values were in fact less than 20% of the federal and state ambient air standard for lead in effect during that period. At no time since 2008 – the year the current NAAQS was established – has any battery plant in the Los Angeles area exceeded the current 0.15 $\mu g/m^3$ requirement. In short, there is no need for this rule.

Response: As discussed in Chapter 1 of the Staff Report (Section: 2008 NAAQS Attainment Status – *Trojan Battery (Source-oriented Monitor)*), SCAQMD staff reviewed monitoring data for the referenced battery manufacturing plant and discovered that multiple high monthly average readings were measured between years 2005 to 2011, including several rolling 3-month averages over 0.15 $\mu g/m^3$ between 2005 and 2007. Although the commenter is correct that the measured levels were lower than the 1.5 $\mu g/m^3$ federal standard in effect during that time period, SCAQMD staff is recognizing the fact that this industry segment has demonstrated the potential to exceed the current federal standard of 0.15 $\mu g/m^3$. Regardless of the timeframe that elevated ambient lead levels were measured, i.e. before or after the current NAAQS, operations from a battery manufacturer have shown the potential ambient lead levels to be greater than 0.15 $\mu g/m^3$. Although the referenced battery plant has not exceeded the current federal standard since 2008, it is important to understand that the source-oriented monitor for the facility was relocated in October 2011, and is most likely not measuring maximum ground level concentrations of lead as the original location was intended to do.

103. Comment: U.S. EPA and SCAQMD have concluded that Los Angeles County can attain the current NAAQS by a separate regulation of secondary smelting facilities (Rule 1420.1), and that conclusion has proven to be correct. Three of the BCI battery manufacturers—Ramcar Batteries, Trojan Battery, and Concorde Battery—are located in Los Angeles County, and therefore conclusions about Los Angeles County are applicable. U.S. Battery is in a neighboring county which has always been in attainment with the NAAQS.

Response: As discussed in Chapter 1 of the Staff Report, Rule 1420.1 establishes requirements for the large lead-acid battery recycling facilities and has

proven effective at demonstrating attainment demonstration with the lead NAAQS. Proposed Rule 1420.2 is needed to ensure that ambient lead concentrations from facilities that are melting more than 100 tons of lead annually are sufficiently controlled, to protect communities, particularly younger children, from lead exposure and to help ensure attainment and maintenance of the NAAQS. As discussed in detail in Chapter 1 regarding the health effects of lead and the justification for lowering the ambient concentration limit to 0.100 $\mu g/m^3$, exposure to lead which is a neurotoxin, can result to serious health effects and behavioral impacts, particularly to young children. The SCAQMD staff believes as a regional agency that is developing a source-specific rule for lead metal melting facilities, that there is a need to ensure that communities around these facilities are protected. The ambient concentration limits in Proposed Rule 1420.2 are the front line defense to ensure ambient lead levels are sufficiently controlled and the trigger to identify if additional controls are needed. Implementation of those additional controls, if needed, would be through a Compliance Plan. There are currently only two facilities subject to Proposed Rule 1420.2 where ambient lead concentrations are being monitored, Gerdau and Trojan Battery. Both facilities have experienced elevated levels of lead relative to the proposed ambient limits in the proposed rule, demonstrating a need for all facilities subject to Proposed Rule 1420.2 to conduct ambient monitoring to quantify the concentration of lead in the air.

The SCAQMD staff is concerned with lead emissions and high ambient air lead concentrations from metal melting facilities, including lead-acid battery manufacturers. As discussed in Chapter 1 of the Staff Report (Section: 2008 NAAQS Attainment Status – *Trojan Battery (Source-oriented Monitor)*), it has been demonstrated that this industry segment has the potential to exceed the current federal standard and the SCAQMD has developed PR 1420.2 in order to help maintain attainment status of the lead NAAQS in addition to protecting public health from the exposure to lead emissions.

104. Comment: Regulation of battery plants is a peculiar target to lower lead emissions in the South Coast Basin, given that EPA's 2011 National Emissions Inventory shows that battery plants constitute less than 0.25% of the basin's lead emissions. (Airports, by contrast, emit 94.33% of the lead in the basin yet are not the targets of regulation.)

Response: PR 1420.2 is based on an existing Rule 1420 which was adopted on September 11, 1992 which established requirements for lead emitting sources such as battery recycling facilities. PR1420.2 is based on the current science and information regarding the potential fugitive emissions from lead metal facilities as well as lowering the ambient lead concentration to ensure attainment of the lead NAAQS as well as providing additional health protection for people, particularly young children that live, go to school, or recreate near lead melting facilities. Lead melting facilities have the

potential for generating fugitive emissions from the melting process, and handling of lead, to name of few. In general, metal melting facilities can accurately report point source emissions, however, fugitive emissions may be unreported or misreported due to the difficulty in quantifying fugitive emissions, and thus emissions reporting does not always capture total lead emissions from these operations. PR 1420.2 establishes requirements to lower point and fugitive sources of lead emissions, including ambient air lead concentrations. Based on reported emissions data and ambient air monitoring data, it has been shown that a facility with low reported lead emissions can still have high ambient air concentrations of lead. Please refer to Response to Comment #3 for further details.

105. Comment: With Rule 1420.1 now fully implemented, by staff's own admission there is no problem left to alleviate (*Under Cal. Health & Safety Code § 40001(c), the District must first "determine that there is a problem that the proposed rule . . . will alleviate and that the rule or regulation will promote the attainment or maintenance of state of federal ambient air quality standards." See also id. §§ 40001(c), 40402(h), 40440(a), 40440.8(b)(6)*).

Response: Ambient monitors around Proposed Rule 1420.2 facilities are needed to better understand actual ambient lead concentrations at facilities that melt more than 100 tons of lead annually. Both facilities where monitoring is conducted showed elevated levels of ambient air lead concentrations as discussed in Response to Comment #103. However, for the remaining 11 facilities there is no ambient air lead concentration data. Thus a need exists to conduct ambient air lead monitoring, and based on this monitoring will require additional measures, if needed, to ensure ambient levels of lead are not exceeded. See Response to Comment #103 for more information.

106. Comment: Staff's proposed 0.100 $\mu g/m^3$ level for triggering additional regulatory obligations also is troubling for a practical reason: it does not account for background lead levels—such as those emitted from the above mentioned airports, railroad or highway activities, or a myriad of other potential causes. The staff takes the view that, since the ten "non-source oriented" monitors in the District show average air lead levels of between 0.01 and 0.03 $\mu g/m^3$, it is reasonable to hold battery manufacturers and others it has characterized as "metal melters" responsible for any exceedance of a higher trigger.

Response: As discussed in Response to Comment #8 above, data garnered from ambient air monitoring conducted by SCAQMD at non-source-oriented monitors operated in the Air Basin between the years 2007 through 2013 was reviewed and demonstrated background concentrations ranging from 0.01 $\mu g/m^3$ to 0.03 $\mu g/m^3$. These values are substantially lower than the proposed final ambient lead concentration limit in PR 1420.2 which is 0.100 $\mu g/m^3$ by January 1, 2018 and the requirement to demonstrate ambient air monitoring data results below 0.070 $\mu g/m^3$ that is applicable to facilities that opt for an

exemption under paragraph (o)(1) - Ambient Air Monitoring Relief Plan. Further, it is worth noting that the recent data collected for the SCAQMD Multiple Air Toxics Exposure Study IV (MATES IV) from July of 2012 to July of 2013 revealed ambient air lead concentrations at some monitors sites that are close to freeways, heavy industrial land uses and nearby railroad tracks to be less than 0.011 $\mu g/m^3$ on a rolling 30-consecutive day average. The commenter states that Staff's view is that a metal melter is responsible for "any exceedance"; however, the rule states that an exceedance occurs if it is measured by a specified monitor that measures "lead concentrations resulting from the facility" [See Response to Comment #95].

107. Comment: Non-source specific monitors to which the staff refers are too scattered to be representative, and there are circumstances in which much higher "background" levels could exist. Therefore, regulating purely on ambient levels, especially without even providing regulated entities with an opportunity to demonstrate that any exceedances are the result of other emission sources, is not appropriate.

Response: Paragraph (d)(3) of the proposed rule states that an exceedance of the ambient limits of the rule are based on monitor readings that measure lead concentrations resulting from the facility. Additionally, paragraph (m)(10) states that the owner or operator shall implement one or more of the measures of the approved Compliance Plan "…if lead emissions discharged from the facility contribute to ambient air lead concentrations…" Further in (m)(10), it is stated in considering the measure(s) that the owner or operator shall implement that are necessary to attain the applicable ambient air lead concentration limit, the Executive Officer shall consider the cause, magnitude, and duration of the exceedance, as well as past exceedances, if applicable.

108. Comment: Staff has offered no scientifically valid rationale for selecting a thirty-day averaging period rather than a ninety-day period. At the federal level, when faced with this exact question, EPA determined that a thirty-day average is not scientifically supported because "[m]edical evidence . . . indicated that blood Pb levels re-equilibrate slowly to changes in air exposure." EPA Review of the National Ambient Air Quality Standards for Lead: Policy Assessment of Scientific and Technical Information at 5-6 (Nov. 2007). As a result, any exceedance only results in an effect on blood lead levels if it increases average air lead over an averaging period closer to ninety days. *Id.*; *see also* EPA Policy Assessment for the Review of the Lead National Ambient Air Quality Standards at 4-6 (May 2014) ("2014 Policy Assessment"). This means that the thirty-day averaging period proposed by SCAQMD does not accurately capture the impacts on the public stemming from potential lead-exposures, and would unduly burden industry by potentially triggering unnecessary corrective actions.

Response: The SCAQMD staff disagrees with the comment that there is no scientific evidence to support a thirty-day averaging period. The administrative record for EPA's national rulemaking published in the federal register in November 2008, [Federal Register, Vol. 73, No.219, Wednesday, November 12, 2008, Rule and Regulations 66991-66996] documents the agencies consideration of the thirty-day averaging period for Lead: **"**The Administrator recognized that there is support in the evidence for an averaging time as short as monthly consistent with the following observations: (1) The health evidence indicates that very short exposures can lead to increases in blood levels, (2) the time period of response of indoor dust Pb to airborne Pb can be on the order of weeks, and (3) the health evidence indicates that adverse effects may occur with exposures during relatively short windows of susceptibility, such as prenatally and in developing infants." In addition, in the Clean Air Scientific Advisory Committee (CASAC) Comments and Recommendations Concerning the Proposed Rule for the Revision of the National Ambient Air Quality Standards (NAAQS) for Lead (July 18, 2008), the CASAC stated "The CASAC's previous recommendations both in the current review cycle and during the prior review of the Lead NAAQS conducted in the 1980's-advocated reducing the averaging time of the Lead NAAQS from calendar quarter to monthly, duration. A monthly or rolling 30-day averaging time with a not to exceed form would be more protective against adverse short-term effects that a form …etc." The SCAQMD acknowledges that EPA, while weighing the shorter 30-day averaging period, chose to finalize the 2008 rulemaking with a 3-month averaging time as being appropriate considering the inherent uncertainty with the available evidence. Nevertheless, the SCAQMD staff is proposing the 30-day rolling average time frame in Proposed Rule 1420.2 consistent with Rule 1420 and 1420.1, on our belief that there is no safe level of lead in blood and a recognition that there are multiple pathways of lead exposure and sufficient temporal variability in lead exposure.

109. Comment: There is a consensus among federal regulators that no health-based evidence shows that lowering the lead ambient air standard below the already low 0.150 µg/m^3 level will lead to lower blood lead levels among the public. *See* Clean Air Science Advisory Committee ("CASAC") Review of the EPA's *Policy Assessment for the Review of the Lead National Ambient Air Quality Standards* at 6, 8 (2013); 2014 Policy Assessment at 4-34; 80 Fed. Reg. 278, 312 (Jan. 5, 2015). Even the one 2014 CASAC member quoted in the draft Staff Report in an attempt to bolster incorporation of the 0.100 µg/m^3 trigger supported the 0.150 µg/m^3 NAAQS, stating "[i]f lowering the standard would be beneficial to [blood lead] levels, then there would be potential for additional public health benefit from a lower standard. However, *such information is currently unknown.*" (*CASAC Review of the Policy Assessment at A-13 (statement of Dr. Susan Korrick)*

Response: The SCAQMD staff disagrees with the comment. As summarized in the Draft Staff Report, Section 1-4: (Justification for lowering ambient air to 0.100 µg/m^3), an ambient concentration limit of 0.100 µg/m^3 is supported by scientific information presented during the development of the 2008 Lead NAAQS and the 2015 Proposed Rule to Retain the Current Lead NAAQS. For the sake of brevity, this response to comment does not attempt to re-state the discussion in Section 1-4 of the Draft Staff Report, but the commenter is referred to this discussion for details on why the SCAQMD staff is proposing a 0.100 µg/m^3. However, Sections 1-4 conclusion is summarized below.

An ambient lead concentration limit of 0.100 µg/m^3 will be more health protective for communities that live around metal melting facilities, particularly younger children. As previously stated, there are currently no commonly accepted guidelines or criteria within the public health community that would provide a clear basis for reaching a judgment as to the appropriate degree of public health protection that should be afforded to protect against risk of neurocognitive effects in sensitive populations, such as IQ loss in children." (73 FR 67004). As a regional air agency, developing a source-specific-rule for metal melting facilities, the SCAQMD staff is recommending policy decisions that are more health protective for communities, particularly young children, which are affected by lead emissions from metal melting facilities regulated under Proposed Rule 1420.2.

In addition, the quote that the commenter attributes to a CASAC member was not included in the Draft Staff Report in an attempt to justify the lower 0.100 µg/m^3. However, statements from the CASAC member that the commenter is alluding to, are used in the Draft Staff Report, but not in the context as described in the comment.

110. Comment: Air exposure is only one of many routes of possible exposure pathways, EPA and external reviewers repeatedly have expressed skepticism about whether a lower ambient air quality standard would have any effect on children's health. Rather, hand-to-mouth ingestion appears to be the primary exposure pathway compared to today's very low ambient air levels. *See, e.g.*, 2014 Policy Assessment 3-8, 4-22; 80 Fed. Reg. at 307.

Response: The SCAQMD staff agrees with the commenter that there are multiple pathways of lead exposure, primarily inhalation and ingestion. While EPA recognizes that this leads to a great deal of uncertainty on interpreting the evidence in setting a lead ambient level which is health protective, they also have acknowledged that policy judgments must be made regarding the level of health protection and margin of safety. The available evidence presented in the 2014 Policy Assessment 3-8, 4-22; 80 Fed. Reg. at 307 supports a range of choices in setting that level, and that "different public health policy

judgments could lead to different conclusions regarding the extent to which the current standard provides projection of public health with an adequate margin of safety." (EPA, 2014). In addition, while ingestion is also a source of lead exposure, the commenter needs to acknowledge that lead in soil leading to hand-to-mouth ingestion primarily occurs as a result of lead deposition from air emissions, some of which can be significantly elevated. One only needs to review the lead in soil data currently found around the Exide Technologies facility located in Vernon, Ca to understand the severity of multi-pathway exposure via Exide's air emissions.

111. Comment: The draft Staff Report attempts to justify the lower ambient level by employing a different air-to-blood ratio (1:10) than EPA (1:7) (*The air-to-blood ratio, as SCAQMD notes, is one of the "two primary inputs to EPA's evidence-based, air-related IQ loss framework." SCAQMD does not disagree with EPA's conclusions on the other input, the concentration-response function.).* In so doing, the staff asserts that EPA chose its ratio based on a "policy judgment," and that the District is free to reach a more conservative policy judgment. But this is incorrect. What staff refers to as EPA's "policy judgment" was a scientifically sound determination firmly tethered to the best available data. As recently as 2014, in analysis ignored by the draft Staff Report, EPA explained that a 1:6 or 1:7 air to blood ratio was the best fit with the most recent and relevant data. *See* 2014 Policy Assessment at 3-9, 4-21; *see also* 80 Fed. Reg. at 299. The draft Staff Report cited the same EPA docket in support of its alternative 1:10 air-to-blood ratio, but completely ignored the studies that were unfavorable or contrary to its position, and ignored the fact that the studies cited by EPA as potentially suggesting a 1:10 air-to-blood ratio are among the oldest studies available. EPA justified its reliance on 1:7 air-to-blood ratio because that is the ratio supported by the most current data. *See* 2014 Policy Assessment at 3-9 (observing that "air and blood data reported for 1996, 1999 and 2001 results in a ratio of 1:6.5" and that another analysis "focused only on the 1996 and 1999 data . . . yields a ratio of 1:7"). The only studies cited by the draft Staff Report—Schwarz and Pitcher (1989), Hayes (1994), and Brunekreef (1984)—rely on data collected between 1974 and 1988, during a period when leaded gasoline was still in use and ambient air levels were significantly higher than today *(One other study was conducted in Mexico City, a locale presenting unique and very different exposure pathways than the United States—including the L.A. Basin.).* And EPA's Integrated Science Assessment specifically warns against relying on studies from that era to predict air-to-blood ratios in today's much lower lead-level ambient air environment. *See* EPA Integrated Science Assessment for Lead (June 2013) at 3-133 ("Due to the limited evidence, there is increased uncertainty in projecting the magnitude of the air Pb-blood Pb relationship to ambient air Pb concentrations below 0.2 $\mu g/m^3$.") But the staff has not explained its decision to elevate older, less representative studies over more recent studies against the expert advice of EPA and the CASAC.

Response: SCAQMD staff has reviewed the information from the U.S. EPA's recent 2014 Lead NAAQS Review and is aware of the additional studies referenced by the commenter located on page 299 of the recent proposed rulemaking to retain the Lead NAAQS dated January 5, 2015[3]. However, upon a complete review of the recently proposed Lead NAAQS, the commenter will discover that on page 300 of the Federal Notice, the U.S. EPA states that these new studies do not appreciably alter the scientific conclusions reached in the 2008 Lead NAAQS Review "regarding relationships between Pb in ambient air and Pb in children's blood" or the range of ratios of 1:5 to 1:10. Although the EPA has reviewed additional studies and conducted a more focused analyses of these studies since the previous NAAQS review in 2008, it does not consider the air to blood ratio range of 1:5 to 1:10 irrelevant and instead the EPA reinforces this range in its most recent conclusions regarding blood lead and air lead relationships. Further, on page 300 of the Federal Notice the, EPA states that the "currently available evidence continues to indicate ratios relevant to the population of young children in the U.S. today…to be generally consistent with the approximate range of 1:5 to 1:10 given particular attention in the 2008 NAAQS decision…" Therefore, the basis for SCAQMD's policy decisions regarding the proposed ambient lead concentration limit of 0.100 $\mu g/m^3$ remains and reinforces the determination that a 1:10 air to blood ratio is more health protective.

Further, the SCAQMD staff considers it just as important to not ignore the older studies that present evidence of higher air-to-blood ratios. Policy decisions should be made on all the available evidence, not just on the most recent data. In regards to the older evidence being conducting in an era of high ambient lead levels due to the prevalence of leaded gasoline, it is important for the commenter to consider that there may be significant elevated lead levels surrounding facilities subject to Proposed Rule 1420.2, that for short durations may contribute to higher air-to-blood ratios which may be more accurate. By setting the ambient lead levels at 0.100 $\mu g/m^3$, the SCAQMD is being proactive and more health protective than the NAAQS.

112. Comment: Other sources used to support the lower ambient air level fare no better. The first is a series of comments submitted to EPA in 2008, all of which EPA explicitly declined to follow at that time and again in 2014 (*See* 2014 Policy Assessment at 3-9, 4-21; 80 Fed. Reg. at 299; *see also* 73 Fed. Reg. 66,964, 67,001 (Nov. 12, 2008). The most recent letter of the Children's Health Protection Advisory Committee—cited by SCAQMD—offers no new evidence or arguments related to air-to-blood ratios or the appropriate ambient air lead level, and thus is irrelevant to this portion of SCAQMD's analysis.) The second is a report from the Center for Disease Control ("CDC"), which the staff report claims "further substantiates the policy

[3] Proposed Rule Notice for 2014 Lead NAAQS available at: http://www.gpo.gov/fdsys/pkg/FR-2015-01-05/pdf/2014-30681.pdf

decision to establish an ambient lead concentration limit of 0.100 µg /m^3." But that is another mischaracterization of the analysis conducted by a federal agency. The CDC report disclaims that its calculations are health-based and defines them instead as statistical measurements of the highest 2.5% of blood lead levels across the U.S. population of children ages 1-5.

Response: The SCAQMD staff disagrees with the comment. EPA's Children's Health Protection Advisory Committee (CHPAC), is a body of external researchers, academicians, health care providers, environmentalists, state and tribal government employees, and members of the public who advise EPA on regulations, research, and communications related to children's health. CHPAC stated in the letter referenced by the commenter that "lead affects children's IQs at exposure levels appreciably lower than recognized…" In addition, in a letter to the Administrator on January 9, 2008 and on a letter June 16, 2008 regarding the Proposed Rulemaking for the National Ambient Air Quality Standards for Lead, CHPAC stated there is clear scientific evidence to support an ambient lead concentration of 0.100 µg/m^3, based on studies showing there are appreciable negative impacts on young children such as behavioral and development effects from low levels of lead exposure resulting in lead blood levels below 10 µg/dL.

In regards to the CDC report referenced by the commenter, that the CDC's action to establish a lead reference level below 10 ug/dL, in lieu of the previous "level of concern" of 10 ug/dL, is not health based but relies on statistical measurements to further substantiate the establishment of an ambient lead concentration limit of 0.100 µg/m^3 is not a mischaracterization of the analysis. The CDC report cited also stated that while 2.5% represents the national geometric mean of children (ages 1-5) with blood lead levels greater than 5 ug/dL, this percentage under-represented the geometric mean blood lead levels among younger children. The SCAQMD staff believes that a statistical evaluation of lead blood levels in children at the highest percentage of blood levels to help justify a lower lead ambient concentration is scientifically valid, especially in cases where younger children live, go to school, or recreate near lead melting facilities.

113. Comment: Staff found that "[s]ince September 2007, all monthly averages [at Trojan Battery] have been below the new lead NAAQS with an average concentration of 0.07 µg/m^3." Yet the draft Staff Report now inexplicably claims "[a]dditional control measures are necessary for the metal melting industry to ensure no violations of the current NAAQS of 0.15 µg/m^3." Despite five years of additional evidence showing compliant, low ambient lead levels at Trojan Battery, the staff has offered no explanation for its reversal of position, nor an explanation of how eight years of continuous compliance justifies the staff's conclusion that non-compliance is likely. And the staff presents no evidence at all relating to the purported threat of exceedances from any other facility.

Response: See Response to Comment #102.

114. Comment: The proposed rule would impose inflexible housekeeping measures that apply regardless of the monitoring results at a facility. Yet air pollution districts are prohibited by law from implementing prescriptive housekeeping measures when a facility can demonstrate equivalent performance in meeting the ambient air lead concentration limit through alternative methods. *See* Cal. Health & Safety Code § 40001(d). In fact, if a district rule establishes an emission limit, that rule may not "set operational or effectiveness requirements" for facilities that comply with those limits. *Id*

Response: The housekeeping requirements of PR 1420.2 do provide a level of flexibility as to the methods to which they are to be conducted (e.g., vacuuming or wet mopping in rule-specified areas for cleaning). Regarding emission limits, Health and Safety Code § 40001(d)(3) refers to any specific control equipment operating on a facility or system under that limit. PR 1420.2 allows for alternative emission control methods relating specific requirements for control equipment (e.g., use of HEPA filters and PTFE bags) so long as they are equivalent or more effective at reducing emissions as approved by the Executive Officer.

115. Comment: The rule imposes very specific and costly housekeeping requirements on every facility, regardless of whether monitoring showed an exceedance of the trigger.

Response: Based on interviewing facility operators in the Basin, and through on-site surveys conducted by the SCAQMD staff at every metal melting facility subject to the proposed rule, it was determined that to an extent all of the proposed housekeeping measures are currently implemented at metal melting facilities. The significant variable in responses to the survey was the frequency at which these measures are implemented. For example, some facilities may conduct cleanings less frequently than other facilities or less frequently than the proposed rule requires. As a result, the SCAQMD staff does not see that compliance with the proposed housekeeping requirements results in high costs to the facility as it is understood that facilities are for the most part already conducting them. It is also important to note that through the extensive public process for development of this rule which included 6 working group meetings, multiple individual stakeholders meetings, and a public workshop, several iterations of the proposed rule have been drafted which have resulted in significant modifications to housekeeping requirements that more appropriately apply to the metal melting industry and that resulted in reduced cost impacts.

116. Comment: Housekeeping requirements were initially designed for battery recycling facilities—an entirely dissimilar industry with different processing areas and

fewer enclosed processing areas (*The only similarity between these two industries is that they both involve the handling of lead-acid batteries. The emission generating processes and emissions control challenges are not similar, let alone sufficiently identical to support basing the requirements imposed on one industry onto the other.*) —where there was evidence of nonattainment. In contrast, battery manufacturers already operate below ambient air lead limits; SCAQMD has identified no real-world problem that the additional measures would alleviate, and has only proffered supposition about theoretical future violations which the industry's track-record of compliance demonstrates are highly unlikely (*See* Cal. Health & Safety Code § 40001(c) (requiring SCAQMD to "determine that there is a problem that the proposed rule or regulation will alleviate")).

Response: See Response to Comment #102 and #115.

117. Comment: The proposal provides no opportunity for tailoring the compliance plans to the specific challenges faced by a particular facility, such as background lead levels, the source(s) of lead emissions, or unique emissions control scenarios. But the reason for the exceedance should be determinative of the response action, and facilities should have flexibility in determining the appropriate control measure based on the cause of the exceedance. Further exacerbating this problem, the proposed rule would provide unbounded discretion to the Executive Director to override plan requirements or the actions of the facility if he/she believes the actions insufficient to preclude subsequent exceedances (even those not due to plant activities, as explained above).

Response: See Response to Comment #95, #96, and #107.

118. Comment: The macro-level analysis of regional impacts included in the draft Socioeconomic Assessment is irrelevant to a rule as specific as this one which has a direct impact on a limited number of known and identifiable facilities. Here, the draft Socioeconomic Assessment ignores the very real costs to local communities by assessing the impact on the entire Los Angeles urban area rather than the areas and facilities singled out by the rule. The four BCI members potentially subject to this rule alone have a total of 710 employees, many with families. Those facilities are at risk of having to close or be required to substantially cut back on operations because of this rule.

Response: The socioeconomic analysis is required by the Health and Safety Code 40440.8 (a) and (b) to identify affected facilities and to provide range of probable costs to affected facilities and industries. In addition, the socioeconomic assessment is required to access and present the impacts on the proposed rule on employment of the regional economy i.e., overall net employment impacts from additional costs of compliance as well as additional spending within the local economy.

The macroeconomic model used for the analysis is unable to generate job impacts at individual facilities due to data limitations. It would be too speculative to assess the impacts of PR 1420.2 on each individual facility without having detailed financial information available for those facilities.

119. Comment: The draft Socioeconomic Assessment's "worst case" scenario assumes a maximum of approximately 230 jobs lost within the first five years. In fact, the "worst case" is a loss of at least 710 jobs, which represents the individuals employed by the four BCI members in the battery manufacturing sector alone, as well as many in at other "metal melting" facilities.

Response: The intention of the proposed rule is not to result in business closures. The 230 jobs forgone in entire economy is the outcome of an alternative scenario (worst case and highly unlikely) where the affected facilities would not purchase any control or service from providers within the Basin. The macroeconomic model is unable to assess such impacts at each individual facility due to data being unavailable at finer industry levels (battery manufacturers) or at six-digit North American Industrial Classification Codes (NAICS).

120. Comment: The calculation of compliance costs—$71,140 to $506,391 for individual battery manufacturers—is not sufficiently supported… Staff has not provided any basis for its assertion that these costs would only lead to "rise in [] delivered price by 0.004 percent" for battery manufacturer's products. BCI's members report that this price increase estimate is woefully low, and that the actual impacts will put them at a significant competitive disadvantage to their out-of-state competitors.

Response: Staff is currently working with each affected facility to reconcile the cost estimate discrepancies. The projected increase in relative cost of services (by 0.006 percent) and a rise in its delivered price (by 0.004 percent) in 2025 are for the entire manufacturing sector (where most of the affected facilities belong) and not for individual battery manufacturers. As previously mentioned, the regional economic model is unable to assess such impacts at each individual facility.

121. Comment: Paragraph (o)(1) exempts any metal melting facility subject to PR 1420.2 from the requirements of subdivision (e) if they demonstrate ambient air lead concentration levels of less than or equal to 0.070 $\mu g/m^3$ averaged over any 30 consecutive days (measured during normal operating condition that are representative of the facility). The said exemption is applicable to any metal melting facility capable of drafting an ambient air monitoring relief plan that complies with all three thresholds in the following evaluation formats: Air dispersion modeling, ambient air monitoring, and source test results. We propose that satisfying two out of the three; including dispersion modeling and source testing, is sufficient to demonstrate acceptable levels of health

risk and will alleviate some of the more onerous requirements of the draft rule.

Specifically, we are concerned about the ability of ambient air monitoring to reflect our facility's actual lead emissions contribution to air quality. While ambient air monitoring is a great tool to evaluate actual levels at a fixed location and time, it does have limitations. For example, our facility is located adjacent to railroad tracks on one side and a major freeway on the other. Also, we are located near the Burbank Airport and a multitude of other industrial facilities. As a result, we believe that it would be incredibly difficult, if not impossible, to differentiate between background emissions and emissions from our exhaust stack – making ambient air monitoring results questionable. This begs the question of the value of ambient air monitoring to determine an exemption. We see the benefit of ambient air monitoring to help quantify fugitive emissions as was done with very large lead emissions sources in the basin, however, for a site that has an emission rate of 0.01 oz/day, it may not be the correct tool nor a required tool. Therefore, we believe the other dispersion modeling and source testing are much more representative of actual air quality contributions.

Response: The SCAQMD staff believes that all three thresholds are necessary to rule out with confidence that any facility which processes 100 tons of lead or more annually will not have ambient air lead concentrations above the proposed limit of 0.100 $\mu g/m^3$. Given the limitations of source test and air dispersion modeling results the commenter's proposal to exempt metal melting facilities from the ambient air monitoring requirements set-forth in subdivision (e) based on source test and air dispersion modeling alone is insufficient. Specifically, source test and dispersion modeling may not accurately estimate fugitive emissions resulting in inaccurate ambient air lead concentration levels.

As discussed in Response to Comment #8 above, data garnered from ambient air monitoring conducted by SCAQMD at non-source-oriented monitors operated in the Basin between the years 2007 through 2013 was reviewed and demonstrated background concentrations ranging from 0.01 $\mu g/m^3$ to 0.03 $\mu g/m^3$. These values are substantially lower than the proposed final ambient lead concentration limit in PR 1420.2 which is 0.100 $\mu g/m^3$ by January 1, 2018 and the requirement to demonstrate ambient air monitoring data results below 0.07 $\mu g/m^3$ applicable to facilities that opt for an exemption under paragraph (o)(1) - Ambient Air Monitoring Relief Plan. Further, it is worth noting that the recent data collected for the SCAQMD Multiple Air Toxics Exposure Study IV (MATES IV) from July of 2012 to July of 2013 revealed ambient air lead concentrations at the monitor near the commenter's facility to be less than 0.011 $\mu g/m^3$ on a rolling 30-consecutive day average. The sources surrounding the SCAQMD monitoring site are similar to those sources around the commenter's facility,

for example, the I-5 Freeway, heavy industrial land uses and a nearby railroad track. Given these similar surrounding site characteristics, the SCAQMD staff disagrees with the commenter's statement that it would be difficult to differentiate between background emissions and emissions from the site. It should also be noted that staff is aware that there could be an incident where an ambient air monitor required by the rule at a metal melting facility demonstrates elevated ambient air lead concentrations not attributed to emissions from the metal melting facility, therefore paragraph (d)(3) of Proposed Rule 1420.2 states that an exceedance of the ambient limits of the rule is based on monitor readings that measure lead concentrations resulting from the facility (See Response to Comment #95).

Further, while a facility may have a low point source emissions rate (e.g., 0.01 oz/day, referenced by the commenter) this rate does not necessarily reflect the overall lead emissions from the facility because it may inaccurately account for fugitives. Without a precise accounting of fugitive lead emissions it is irresponsible to dismiss a source of lead emissions as insignificant. Ambient air monitoring combined with air dispersion modeling and source test data results will provide a comprehensive emissions profile of metal melting sources and enable the SCAQMD staff to discern any emission unrelated to these sources.

Given the SCAQMD's experience with ambient air monitoring in the Basin and the apparent similarities between the commenter's facility and areas where monitors have historically been located within the ambient air monitoring network, the SCAQMD staff disagrees with the commenter's belief that ambient air monitors placed in accordance with the provisions of PR 1420.2 will not accurately represent the facility's actual contribution of lead emissions or serve as an appropriate and valuable tool to determine a facility's ambient air lead concentration levels.

122. Comment: Paragraph (o)(3) of PR 1420.2 exempts metal melting facilities from the proposed rule requirements if the amount of lead melted at the facility has been reduced to less than 50 tons per year. Therefore, our facility is interested in understanding how 50 tons was identified as the threshold point and the District's estimated emissions associated with 50 tons of melting a year.

Response: Per Response to Comment #2 above, the 50 tons per year value is based on 100% collection efficiency and no fugitive emissions. SCAQMD staff determined that throughput levels that are half of the applicability threshold for PR 1420.2 would likely result in ultra low emissions warranting an exemption from PR 1420.2. However, these facilities would then need to continue to comply with Rule 1420 and all other applicable SCAQMD rules.

123. Comment: We believe that the lead charge rate is not reflective of emissions and impact to the environment. From a physical properties perspective, the temperature of the lead, its subsequent vapor pressure, and the surface area of the melt kettle are more indicative of the potential emissions. Our facility's most current permit application references an AQMD conversion factor of 0.01667 pounds of lead emission per ton of lead metal melted. If this emission rate is used to determine an emission threshold for the 50 ton/year exemption, we arrive at 0.8335 pounds of lead per year (0.01667 lb. lead/ton lead melted * 50 tons lead melted = 0.8335 lb. lead emission). Our most current source test shows that this facility emits 0.00059 lb lead/day, or 0.215 lb. lead/year (0.00059 lb/day * 365 days). This number is approximately four times lower than what is assumed for a facility that melts 50 tons a year. Since emissions of lead are dependent on more than just lead melting throughput, we recommend that an exemption option be included that is based on the actual lead emission threshold of the facility.

Response: Temperature of the lead, its subsequent vapor pressure, and the surface area of the melt kettle are indicative of potential emissions, however, these emission indicators alone do not provide a complete profile of emissions from metal melting operations. For example, default lead emission factors from U.S. EPA's *Compilation of Emission Factors (AP-42)* establish emission rates that are directly tied and calculated based on charging rates, as does the commenter's facility permit application that references a 0.01667 pounds of lead emissions per ton of lead metal melted. Therefore, charge rates are also a crucial component to estimating emissions from metal melting and in some cases could outweigh emissions from other operational parameters at a given facility.

Additionally, SCAQMD staff is concerned about fugitive emissions resulting from throughput levels beyond 50 tons per year. Specifically, SCAQMD staff is concerned that facilities with throughput levels and associated activity levels beyond this exemption threshold could have significant fugitive emissions resulting from various industrial processes not captured by point source controls or accurately accounted for in emissions quantification calculations. For example, some facilities that utilize lead melting pots vent fugitive emissions from the pot to a capture and control device (e.g., a hood exhausted to baghouse) upon operation of the furnace. However, during transport of the molten lead from the melting pot to casting areas of the facility there are no emissions controls to minimize or eliminate fugitive emissions and source tests do not capture emissions generated during this stage of the process. Therefore, SCAQMD staff disagrees that an emissions threshold will suffice at meeting the objectives and purpose of PR 1420.2.

124. Comment: According to the 2012 SIP, the EPA attempted to quantify fugitive emissions, but concluded it is very difficult and acknowledged the points of

error variability. EPA's final solution was a calculation using factors for size, housekeeping, enclosure and multiplied against an assigned standard, none of which is reflective of how lead is used in our facility's operations. If we are to make comparisons of this type, we need to keep it apples to apples.

According to EPA's fact sheet, "Revisions to Lead Ambient Air Monitoring Requirements" the EPA threshold for lead monitoring near an industrial facility is 0.5 tons/year or 2.74 lb/day. This is 2.74 / 0.0006 lb/day = 4,566 x higher than our facility's point source emissions, including fugitives, the facility emissions will come nowhere close.

EPA's position on source oriented ambient air monitoring near high-emitting facilities was reflected in the Federal Register / Vol. 75, No. 247 / Monday, December 27, 2010 / Rules and Regulations. The EPA used a 1 tpy threshold. To put this in perspective, the operation utilized by Senior emits 0.22 lbs/yr from the HEPA effluent. Under this philosophy our facility would not be required to conduct ambient air monitoring.

Response: Historical source-oriented monitoring data from a metal melting facility that reported less than 0.015 tpy of lead through the SCAQMD's AER Program and EPA's TRI Program has demonstrated that a facility with lead emissions substantially lower than EPA's 0.5 tpy threshold could contribute to an exceedance of the NAAQS. This monitoring data reinforces SCAQMD staff's concern pertaining to unaccounted fugitive emissions that may contribute to elevated ambient air lead concentration levels. See Response to Comment #1 and Section "Trojan Battery (Source-oriented Monitor) in Chapter 1 of this Staff Report for further details.

125. Comment: As we promulgate new rules to reduce lead emissions and reduce health risk, it's only fair to bring all relevant information forward to determine impact to the different businesses that are affected. Our facility is an aerospace manufacturing company and its single ancillary lead point is limited to a small working area. This poses significantly different issues than a battery plant, where there are many locations within the facility where lead is processed. There are also technical differences as our facility re-melts pure lead only at temperatures just barely above the melting point (621 F). Because of this practice the vapor pressure is extremely low (4.4355E-9) and the ancillary lead process at our facility does not lend itself to the generation of $<PM_{10}$, thus resulting in very little potential for fugitive emissions.

Requiring our facility to conduct ambient air monitoring will increase compliance costs, but has zero benefit to us and the community. Because of the physical properties of the process the uncontrolled emissions were measured at an extremely low 0.000199 lbs/hr in 1990 and reconfirmed at

0.000133 lbs/hr in 2015, both de minimis values and well below the exemption level of 1420.2(o)(2) of 0.005 lbs/hr.

Response: The commenter contends that low melting temperatures (621 F) used at the subject facility preclude the potential for elevated fugitive emissions. However, based on historical source-oriented ambient air monitoring data near other metal melting facilities in the Basin that also melt at relatively lower temperature there have been instances of elevated ambient air concentrations of lead (See Section "Trojan Battery (Source-oriented Monitor) in Chapter 1 of this Staff Report for further details). Further, although the facility referenced by the commenter may have a single lead point source (i.e., a single lead melting pot) it is worth noting that the ancillary processes to the lead melting activity at this site are similar to other metal melting facilities. For example, like other metal melting facilities this facility includes a pouring and casting process and generates lead waste from these processes. Therefore, SCAQMD staff disagrees that the facility's lead processes and low melting temperatures excludes the possibility of elevated fugitives or ambient air lead concentrations near a metal melting facility.

126. Comment: Rule 1402.2 allows demonstration of de minimis impacts by source testing and modeling, which is sufficient. Does SCAQMD intend to change all industry rules that allow modeling to show de minimis impacts, to now require ambient monitoring? Requiring ambient monitoring for facilities with minimal air toxics emissions has zero public health benefit, and presents an unreasonable and unfair burden on business.

Response: The SCAQMD continually assesses emission sources in the South Coast Air Basin and is currently in the process of reviewing and revising existing rules and drafting new rules applicable to lead emission sources. Future regulatory requirements are not pre-determined by the SCAQMD staff. Further, under certain circumstances, for example, when addressing toxic lead emissions that can result in detrimental health effects to the public and potentially violate federal standards, the SCAQMD rule development staff has the responsibility of reviewing feasible regulatory standards that effectively reduce these emissions resulting in greater protection of public health, and in some instances, these standards may be adopted by the SCAQMD Governing Board and enforced by SCAQMD staff.

Further, per the H&SC Sections 40440.8(a) and (b), the SCAQMD is obligated to conduct a socioeconomic assessment for each rulemaking project. The socioeconomic assessment accounts for the burden on businesses that the commenter references in their comment. The PR 1420.2 Socioeconomic Assessment includes compliance costs and overall economic impacts, for example, job impacts to facilities subject to PR 1420.2. Details regarding the economic impacts are available on pages 5 through 17 of the PR 1420.2 Socioeconomic Assessment.

127. Comment: Below are key points to consider when evaluating impact to operations similar to those performed at our facility, which is NOT rate dependent:

a. Lead is not our primary business, only a single ancillary lead point source in a limited facility working area. At a battery plant there are many locations lead is processed.
b. Given the very low demonstrated uncontrolled lead emissions from our melting operation, any further fugitive lead emissions are negligible and may not even be measurable.
c. Our facility already has a total building enclosure for its lead operation, and very little opportunity for lead to be <PM10 and airborne that would allow it to get outside the facility. The housekeeping and enclosure measures required by Rule 1420 and PR 1420.2 ensure any fugitive lead emissions are kept to a minimum.
d. Monitoring entails considerable measurement uncertainty; detection limits, where to select monitor locations with bidirectional wind patterns, separating facility impact from background sources, interpretation of results, and other technical issues. As a result, monitoring is only appropriate for facilities with expected high lead emissions.
e. Modeling has been SCAQMD's standard approach to prove no health concerns, as can be referenced in many rules. Modeling is better than monitoring in this case, because it presents a more accurate and conservative picture of impact locations, human exposure and amounts under all operating conditions. From modeling information, reasonable decisions can be made whether further information such as from monitoring is needed, or additional emission reductions should be required.
f. If the 0.5 tons/year emission rate threshold is considered health-protective by EPA, so that no lead monitoring is needed below that threshold, then the point source emissions 0.04 lb/hr or 0.175 tons/year (24-hr basis) in PR 1420.2(o)(C) along with conservative, demonstrated modeling impacts (including fugitive emissions) <= 0.07 $\mu g/m^3$ in (o)(B), should provide more than enough health-protective margin for a facility to obtain monitoring relief.

Response: Response to a. – As discussed in Response to Comment #125 although lead is not the primary business at this facility the ancillary processes to the lead melting activity at this site are very similar to other metal melting facilities. For example, similar to other metal melting operations this facility includes a pouring and casting process and generates lead waste from these processes. Like all other facilities subject to PR 1420.2 each of these processes are a potential source of fugitive lead emissions. Given the operational similarities of this facility to other metal melting facilities in the PR 1420.2 universe it is reasonable to subject it to the same requirements.

Response to b. - It is inaccurate to assume negligible fugitive emissions given the low uncontrolled stack emissions. As discussed by SCAQMD staff in Response to Comment #122 above, historical source oriented monitoring data near other metal melting facilities demonstrates that low stack emissions do not necessarily result in negligible fugitive emissions. It should be noted that PR 1420.2 provides an exemption to subdivision (f) – Lead Point Source Controls if the facility has uncontrolled emission levels below 0.005 pounds/hour.

Response to c. –The SCAQMD staff agrees that housekeeping and enclosure measures help ensure any fugitive lead emissions are kept to a minimum, however, the potential for fugitive emissions from metal melting processes substantiates a need for ambient air monitoring (see SCAQMD staff Response to Comment #123 for details regarding fugitive emissions).

Response to d. – The uncertainties expressed by the commenter are addressed in the ambient air monitoring plan requirements set-forth in paragraph (e)(1) of PR 1420.2. The provisions of paragraph (e)(1) requires SCAQMD staff review and approval of Lead Ambient Air Monitoring Plans. This review will eliminate technical uncertainties in collecting ambient air monitoring data.

Response to e. – In many emissions scenarios modeling can accurately portray the behavior of a facility's emissions and health impacts resulting from these emissions. However, modeling has limitations and cannot provide important pieces of information such as: real time emissions data and actual ambient air emissions concentrations (as opposed to theoretical calculations) that could detect emissions discrepancies resulting from unidentified or unquantifiable fugitive emissions that could elevate ambient air concentration of lead in communities surrounding a particular facility.

Response to f. – See Response to Comment #121 and #124.